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URTICARIA AND INSULIN RESISTANCE WITH REFERENCE TO THE RELATION OF THE SKIN TO THE CARBOHYDRATE METABOLISM

Report of Case and Review of Literature*

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THE following case is of interest because urticaria, which developed only two days after the patient left the hospital in good condition, caused temporary resistance to insulin in a patient with mild diabetes.

CASE REPORT

D. L., a female, aged 65, was first admitted to the Beth Israel Hospital, January 19, 1929, with an acute respiratory infection. During her stay there she developed jaundice, which cleared after a few days. Glycosuria was noted at the same time. Her diabetic condition was easily controlled with a diet and insulin. She was discharged, February 19, 1929, on a diet consisting of carbohydrate 100 grams, protein 60 grams, fat 106 grams—1594 calories, without insulin.

Discharge diagnosis: Influenza, Cholecystitis, Diabetes mellitus.

On September 28, 1929 she was admitted to the Deaconess Hospital. An abstract from the hospital records states that the patient's diabetic condition was not severe and that it was well controlled. A few days after admission the situation became complicated by a weakness of the left side of the tongue, probably due to a mild cerebral hemorrhage. She was discharged, October 7, 1929, on a diet consisting of carbohydrate 108 grams, protein 52 grams, fat 88 grams—1432 calories and five units insulin daily. Discharge diagnosis: Diabetes mellitus, Facial paralysis, Cerebral arteriosclerosis.

She was readmitted to the Beth Israel Hospital, October 12, 1929. Two days after her discharge from the Deaconess Hospital Dr. Harry Linenthal had been consulted by her because of severe itching. He found a generalized urticaria. The urine at that time showed a trace of sugar. The itching became progressively worse and she reëntered the Beth Israel Hospital. At the time of admission the urticaria had disappeared, but the skin was covered with scratch marks. Sugar and acetone were present in the urine, but there were no other signs of acidosis.

The clinical data during her last period at the hospital are summarized in Table 1. On the first day acetone was present in the blood, but the CO_2 combining power was 47 volumes per 100 cc. The blood contained as much as 410 and 362 mgs. of glucose per 100 cc. during the first two days, but has been normal since that time. During the first 24 hours the patient received 515 units of insulin and about 200 grams of carbohydrate. The diet on the second day consisted of carbohydrate 100 grams, protein 60 grams, fat 40 grams—1000 calories. The insulin dosage was diminished as follows: 270, 170, 140, 80, 40 and 10 units on successive days and was omitted on the eleventh day.

In the Out Patient Department, where the patient is now being followed, the urine showed sugar only on one occasion. She is on a diet consisting approximately of carbohydrate 120 grams, protein 60 grams, fat 120 grams—1800 calories, without insulin.

Discussion. The data indicate that the patient has mild diabetes. The urticaria developed two days after the patient was discharged by Dr. Joslin from the Deaconess Hospital. The urine at first showed only a trace of sugar. Within the next three days marked glycosuria and acetonuria developed. During the attack of the urticaria the patient became careless with her diet. The indiscretion in the diet, however, was not extreme enough to cause this sudden disturbance in the carbohydrate metabolism. On another occasion, five months later, in spite of carelessness in her diet, which was followed by glycosuria, she showed no ill effects. The glycosuria then disappeared on slight restriction of diet. I, therefore, believe that the urticaria alone was responsible for the sudden resistance to insulin, which this patient developed. What brought on the urticaria we do not know. Possibly it was due to some food irritant, or even the insulin itself.

REVIEW OF THE LITERATURE

It is a common observation that insulin injections may be followed by a local reaction. Strauss[1] claims that he has seen some patients who show a local reaction from the insulin, independent of its brand. In two cases the local reaction was so marked that he gave up the insulin treatment. In about 5 per cent. of his cases a local reaction was caused only by a particular brand of insulin. One patient, following the insulin therapy, developed a generalized erythema with fever for several days. Another patient developed generalized urticaria after insulin injection and died in coma. Foerster[2] reported a case treated with insulin in which a mild attack of urticaria developed at a time when the urine was sugar-free. Following the appearance of the urticaria, sugar and acetone appeared in the urine. In spite of the fact that

*From the Diabetic Clinic of the Beth Israel Hospital, Boston. This case was seen by me during the acute stage through the courtesy of Dr. Harry Linenthal and later followed up at the Diabetic Clinic of the Beth Israel Hospital, Boston.

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the insulin was increased to 160 units in four hours, the patient grew progressively worse. She improved only after the insulin was discontinued and after she was given an oatmeal while 200 units daily and it took several months before she showed improvement. Cade, Gate and Barrol[4] report three cases of skin eruptions due to insulin—two urticarial and one morbili-

TABLE 1

Date	Urine Sugar	Urine Acet. bodies	Bl. Sugar	Vol. CO_2 comb. power	Diet C. P. F. Cal.	Insulin units	Remarks
1929							
Oct. 12							
Adm.							
1.00 P.M.	5%	4 plus	—	—			
8.30 P.M.	2.5%	4 plus	.410	—	200- 0- 0-800	515	in 24 hours
10.00 P.M.	3%	4 plus	.288	47	(after 230 units)		
Oct. 13						50	from noon to midnight
8.00 A.M.	1 plus	1 plus	.194	—	100-60-40-1000	565	total till midnight
Midnight	0	0	—	—			(in 36 hours)
Oct. 14							
9.00 A.M.	2 plus	4 plus	.362	—	100-60-40-1000	No insulin from 8 P.M. 10/13 to 9 A.M. 10/14	
6.00 P.M.	0	0	—	—		270	in 24 hrs. till midnight
Oct. 15							
8.30 A.M.	0	0	.88 fasting	—	100-60-20-820	170	in 24 hrs. till midnight
11.30 A.M.	3%	0		—			
8.00 P.M.	0	0					
Oct. 16							
8 A.M.	0	0	.88 fasting	—	100-60-20-820	140	
11.30 A.M.	2%	0					
Oct. 17	0	0			80-60-60-1100	80	
" 18	0	0	.108 fasting		"	75	
" 19	0	0			"	45	
" 20	0	0			"	40	
" 21	0	0	.72 fasting		"	10	
" 22	0	0			80-60-80-1280	10	
" 23	0	0	.106 fasting		"	10	
" 24	0	0	.109		"	none	
" 25 DISCHARGED							
O. P. D.							
Nov. 19	0	0	.112	—	80-60-80-1280	"	
Dec. 31	0	0	.86 (3 hrs. after breakfast)		100-60-90-1450	"	
1930							
Feb. 18	0	0	.111 (3 hrs. after breakfast)		120-60-90-1530	"	
March 11	0	0	.108 (4 hrs. after breakfast)		130-80-90-1650	"	
" 25	4 plus	0	— was careless with her diet			"	
April 1	0	0			80-80-100-1540	"	
May 5	0	0			100-80-100-1620	"	
July 15	0	0	.120 (3 hrs. after lunch)		120-60-120-1800	"	
Dec. 10	0	0	.148 (3 hrs. after lunch)		120-60-120-1800	"	

diet. Glassberg, Somogyi and Taussig[3] also had a case of diabetes in which urticaria developed following the injection of insulin; coma supervened and one day the patient required eleven hundred units; her insulin dosage was for a form. Williams[5] described a case in which a severe allergic reaction developed as the result of sensitization with the protein of a certain brand of insulin. Possibly, as Joslin[6] suggests, those complications will disappear when we get

pure crystalline insulin, freed from impurities.

Root[7], judging from the amount of insulin MacLeod's[8] and Hedon's[9] depancreatized dogs needed daily, believes that the human pancreas produces from 200 to 300 units in 24 hours. Diabetics who require more than 300 units probably have pathology not only in the pancreas but elsewhere also. We must, therefore, think of inactivation of the insulin, or of some disorder of other organs which take part in the metabolism or distribution of the sugar in the body, as, for instance, the liver, thyroid, pituitary, and skin.

The comparatively little pathology found at autopsy in the pancreas of severe diabetics, dying in coma, as well as the practically normal insulin content of such organs removed at autopsy helped to advance the theory of inactivation of insulin as the cause of diabetes. Epstein and Rosenthal[10] believe that in diabetes the capillary permeability in the pancreas is changed to the extent that trypsin appears in the blood stream. Trypsin acts on the liver, producing a glycogenolysis with hyperglycemia, and also inactivates insulin in the blood. Mauriac and Aubertin[11] and also Karelitz, Cohen and Leader[12], on the strength of their experiments, claim that blood cells contain a certain substance which inhibits insulin. This substance was named *tissuline* by Mauriac and Aubertin. According to them, it appears abnormally in the blood serum in case of excessive permeability of the blood cells. The following results obtained by Karelitz and his co-workers are of special interest in our case. They found that blood taken from a ten-year-old child, on the first day of an attack of serum sickness which occurred on the tenth day after the injection of diphtheria antitoxin, showed marked insulin inactivation. Ten days after the serum sickness disappeared, the blood of the same child showed only the usual amount of insulin inactivation, which was, of course, very much less than that found during the period of her illness. However, Glassberg, Somogyi and Taussig[3], in their case of urticaria, did not find any substance which inactivated the insulin. Brugsch and Horsters[13], as well as a number of other authors, have attempted to show that a coferment or complement is necessary in order that insulin may effect certain steps in carbohydrate metabolism. Destruction of such a coferment should cause inactivation of the insulin. Loewi[14] claims that the liver secretes a substance, named by him *glycaemin*, which inhibits the action of insulin. He believes that in diabetes there is an increase of this substance in the blood because the liver is diseased. This, however, was not confirmed by French authors.

DISORDERS OF THE THYROID, PITUITARY AND ADRENAL GLANDS

The interrelation of the endocrine glands is well recognized. The hormones of the thyroid, pituitary and suprarenal glands are antagonistic to insulin. It was found that in diabetes accompanied by thyroid or pituitary disturbance the insulin requirement is higher than usual. Cases of insulin resistance in diabetes mellitus complicated by diseases of the thyroid and pituitary glands are reported by Rosenberg and Meyer[15], Wemyss[16], Mauriac and Aubertin[17] and by a number of other investigators in this field. In fact, any stimulation of the thyroid or pituitary glands may cause insulin resistance. Lawrence[18] believes that infections activate the thyroid and suprarenal glands and neutralize the power of insulin. Why is it not possible that during an attack of urticaria these glands are activated and cause insulin resistance? It would be interesting, therefore, to see if an elevation of the basal metabolism can be discovered at the time when the urticaria is fully developed.

RELATION OF THE SKIN TO THE CARBOHYDRATE METABOLISM AND TO INSULIN RESISTANCE

The relation of the skin to carbohydrate metabolism and to insulin resistance is now a problem in itself. The problem has been approached from different angles and is still unsolved. The questions that arise in relation to it are: Is the disturbed carbohydrate metabolism the cause of the vulnerability of the skin of the diabetic? Should we, in every case of skin disease, or at least in every case presenting a skin lesion commonly seen in diabetics such as pruritus vulvae and furunculosis, look for an impaired carbohydrate metabolism? Is a disturbed carbohydrate metabolism ever produced by a skin disorder?

In order to be able to draw any conclusions we must discuss the results of the investigations that have been done in this vast field. The studies have been carried out on diabetics and patients with skin lesions where diabetes was clinically not diagnosticated. The problem is more complicated because of the difficulty of comparison of the results obtained by the different men since the blood sugar methods employed were different; furthermore, the blood for the tests was taken at varying times of the day, and the figures taken as normal values were not the same. In addition, most of the non-diabetic skin cases that are studied for this purpose are borderline cases.

Since the studies have been carried out by a large number of investigators we must limit ourselves to a short review of the literature on this subject.

The most common skin lesions in diabetes mellitus are: pruritus, especially of the vulvae; furunculosis; carbuncles; acne; and gangrene. von Noorden and Isaac[19], in a statistical study of 25,000 diabetics, found that in 21 per cent. of the cases there was pruritus; in 5 to 8 per cent., stubborn eczemas, and in 10 to 25 per cent. of their cases, furunculosis, carbuncles, and acne. Greenwood[20], in a study of 500 consecu-

tive patients with diabetes, found that 25 per cent. gave a history of skin lesions.

In the treatment of diabetes it has been noticed that diabetics with skin disorders require more insulin than usual. Joslin[6] speaks of a patient with low-grade dermatitis, such as is seen in elderly people, who is taking 100 units of insulin daily without any insulin reaction. In certain cases of urticaria, as for instance our case, and the other cases reported above, very large amounts of insulin were required.

Blood sugar studies in skin disorders of non-diabetics have been carried out by a number of authors in order to determine the relation of hyperglycemia to the different skin diseases. The studies were performed on patients who showed no glycosuria and gave no history of diabetes. Pels[21], in 1915, found hyperglycemia in certain dermatoses. In 1916 Highman, Schwartz and Mahnken[22] confirmed these results in acne, seborrhoea and sycosis. Pick[23], in 1921, found it in psoriasis and furunculosis. In 1923 McGlasson[24] found hyperglycemia in 158 cases of skin diseases. In some cases only a glucose tolerance test disclosed an impaired sugar metabolism (Ayres[25], Crosti[26], Campbell and Burgess[27], Haldin-Davis and Wills[28], and Somerford[29]). Rost's[30] findings, in 1929, only partly confirmed the results reported by the others.

From the above-mentioned reports and from the results obtained by a large number of authors not mentioned here, we must conclude that there is at least a certain percentage of cases with skin lesions, in which, with the help of blood sugar studies and, when necessary, a glucose tolerance test, one can disclose a disturbance of the carbohydrate metabolism. When hyperglycemia is found in cases of infection or intoxication, which are accompanied by skin manifestations, it is difficult to determine which one of these conditions is responsible for the hyperglycemia.

Miyake[31] tried experimentally to show the effect of eczema on the carbohydrate metabolism and found that a dermatitis produced by painting the shaved back of rabbits with croton oil caused an hyperglycemia. From this he concludes that the disturbance of the carbohydrate metabolism found in eczema is not always the etiological factor, but may be caused by the eczema itself. In contrast to Miyake,—Lortat-Jacob and Bourgeois[32] claim that in eczematiform affections, following dermatitis from external causes, such as those seen in dish-washers and housekeepers, they found an hypoglycemia.

Talbert and Silvers[33] undertook the study of the sweat and found that the sweat of normal people contains an average of 15 mgs. sugar per 100 cc. sweat. Usher and Rabinowitch[34] have noticed that in eczema, and in diabetes after the administration of glucose, there is an increase in the amount of sugar excreted in the sweat to about 40 mgs. per 100 cc. and also a great increase in the amount of the sweat.

Warren[35] and also Unna[36] found that the skin has a glycogen storing function. The normal skin contains large amounts of glycogen. In the depancreatized animal, according to Fichera[37], all glycogen disappears except traces in stratified epithelium. Warren believes that the variations in the skin sugar and glycogen may account for the susceptibility of the diabetic patient to skin infections. Wohlgemuth and Nakamura[38] found that the skin contains diastase and a glycolytic ferment in quantities not less than in the organs that take a great part in the sugar metabolism. The skin also has ferments that help to build up carbohydrates by the way of oxidation. They, therefore, believe that the skin plays an important rôle in the intermediary carbohydrate metabolism. Gänsslen[39] and later Wohlgemuth and Scherk[40] undertook a chemical study of the content of skin blisters in sunburn and other pathological conditions, as well as in blisters produced through the application of mustard plasters. They believe that the chemical content of blisters is the same as that of the skin. According to Gänsslen, the sugar in the blisters is 65 to 110 mgs. per 100 cc. Urbach[41] has made a comparative study of the sugar content of the blister fluid and of the skin and found that they were not identical.

An examination of the sugar content of the skin itself in animals was carried out for the first time by Bang[42], who studied the sugar content of different organs after intramuscular glucose injection. Much work on the sugar content of the different organs in animals was done later by Palmer[43]. He reported very low figures for the skin. Urbach and Fantl[44] found that the lime of the skin disturbed the reduction in Palmer's method for the determination of the sugar and therefore his figures are too low and should not be used.

Folin, Trimble, and Newman[45] studied the skin sugar after intravenous injections of glucose into the animal. They found that the skin played an important part in the distribution of sugar in the body,—even more than the muscles and other tissues. With the increase of the blood sugar level after intravenous injection of glucose the sugar content of the skin rises correspondingly. Then it reaches a state where the sugar level in the skin is first higher than in the blood and later lower. One fact, however, must be taken into consideration, namely, that in these experiments the animals were nephrectomized. (See chart No. 1.)

Folin and his co-workers have concluded from their experiments that the skin acts as a reservoir for the increased amount of sugar in the body. On the ground of these experiments Root[8] is inclined to believe that insulin resistance in diabetics with skin disorders may be caused by a blockage in the diffusion of the sugar in

the diseased skin, and therefore, an increased amount of insulin is needed to reduce the higher blood sugar.

Intravital studies of the chemistry of the skin in man were carried out for the first time by Urbach and his co-workers[46, 47, 48]. With the use of a Kromayer electric puncher he obtained samples of skin of about 1 cm. in diameter. He then studied the skin sugar under normal conditions, in diabetes and in diseases of the skin. He found that in the different animals the relation of the cutaneous sugar to the blood sugar varies with the species and is not the same as in the human. (See chart No. 2.)

CHART NO. 1
(Folin, Trimble, and Newman*)

COMPARISON OF SUGAR CONCENTRATION OF SIMULTANEOUSLY OBTAINED SAMPLES OF BLOOD AND OF SKIN (IN THE GUINEA PIG)*

Amytal anesthesia. Kidneys removed.
Sugar injected, 3 gm. per kilo.

Interval after injection of glucose	Sugar concentration per 100 parts			
	Experiment 1		Experiment 2	
	Blood	Skin	Blood	Skin
min.	mg.	mg.	mg.	mg.
5	—	—	744	417
10	668	331	—	—
20	—	—	—	378
30	500	439	—	—
45	—	—	444	311
60	332	226	364	267
90	254	182	216	228
120	190	—	—	—
150	143	112	—	—
180	100	64	—	—

*Jour. Biol. Chem. 75:274, 1927.

CHART NO. 2
(Urbach and Sicher*)

Sugar content in mgs. % (fasting)	in the blood	in the skin	Relation of the skin sugar to the blood sugar in %
Man	98	47	48
Rabbit	109	117	107
Guinea pig	117	119	100
Dog	92	60	66
Rat	83	80	100
Mouse	108	53	50

*Arch. f. Derm. u. Syph. 157:160, 1929.

With the administration of glucose by mouth the sugar in the skin rises just as the sugar in the blood. In normal people the sugar in the skin is back to normal after four hours; in diabetics it is still elevated. Under normal conditions the cutaneous sugar curve runs parallel with the blood sugar curve. Urbach believes that a latent diabetes can be disclosed by the characteristic diabetic skin sugar curve (slow rising and protracted curve) after glucose administration, even if the blood sugar curve is still normal. This, he believes, explains the good effect of a low carbohydrate diet or a diet with insulin in the cases where the blood sugar is found to be normal but the skin sugar is elevated. This may explain to a certain extent the fact that in diabetes with skin diseases more insulin can be tolerated. Urbach[47] found that all cases of urticaria do not react in the same way. He reports a woman of 32, who was under treatment for urticaria for several weeks without any results, and who had a normal urine and a normal fasting blood sugar. A glucose tolerance test was performed and gave a diabetic blood and skin sugar curve. On a low carbohydrate diet the patient recovered and remained well. In some cases of urticaria, however, he found that after glucose administration the blood sugar rose to a high level and in three hours was down even below normal; but the skin sugar remained normal throughout the test. These cases did not respond to a low carbohydrate diet in spite of the high blood sugar found during the glucose tolerance test. Urbach thinks that we are dealing there with a condition in which the pathological blood sugar curve, in the presence of a normal skin sugar curve after glucose administration, is not caused by an impaired sugar tolerance, but by an excessive mobilization of sugar, in accordance with the studies of Oesten Holsti[49].

The skin as an organ, next to the musculature, is the heaviest part of the body (16 per cent. according to Vierordt[50]), and in relation to the mass is three times the size of the liver. This, and the part the skin plays in carbohydrate metabolism, may explain why dermatosis in diabetics may produce a temporary resistance to insulin.

SUMMARY

1. A case of diabetes mellitus with temporary resistance to insulin following an urticaria is reported. Under treatment with large doses of insulin (515 units in the first 24 hours) the patient improved: insulin was omitted on the eleventh day and the blood sugar has remained normal since then.

2. A review of the literature reveals similar cases with varying outcomes.

3. It is suggested that impurities still found in insulin, as now prepared, may be the possible cause of urticaria.

4. The theories on inactivation of insulin are described.

5. The relation of the skin to the carbohydrate metabolism and to insulin resistance is discussed.

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THE INDICATIONS FOR ABDOMINAL SURGERY IN THE INFANT*

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THE pathetic picture of a child under two years of age suffering with abdominal symptoms has for centuries appealed to the heart of the attending physician. In more recent times, and particularly in this age of specialization in medicine, great progress has been made in the early recognition of the surgical nature of abdominal symptoms in infants. The pediatricians and the Children's and Infants' Hospitals all over the world have developed facilities for the more careful study of the very sick infant and as a result early diagnosis of obscure and serious ailments has permitted the early application of surgical treatment.

At the Children's and Infants' Hospitals in Boston, facilities are available that have led to a coöperative medical and surgical study of sick infants, so that early diagnosis and treatment are available in fact.

The purpose of this paper is to point out some of the most common conditions that produce abdominal signs in children under two years of age, as revealed in the experience of our Surgical Service. It is well also to make it clearly understood that infections in the peritoneal cavity are not the only forms of lesions that are found in infants suffering with abdominal pain.

To make a diagnosis in abdominal cases, it is essential to listen patiently and thoughtfully to the story of the illness as told by the parent, sorting in one's mind the most important details and arranging them carefully in chronological order. Then, having the story, it is necessary to observe all signs that can be seen without disturbing the infant, in order that conditions above the diaphragm may be definitely ruled out (features such as labored respirations

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as often found in the pneumonias). Lastly, it is necessary to feel everything there is to feel, including the pelvis, by rectal examination.

Next comes the need for laboratory aid — blood counts and chemistry, urinalysis and examination of stool. Tuberculin tests and x-rays can be of considerable aid in the less urgent cases.

For convenience, it is well to divide the infants into age groups, pointing out the most common conditions found in each group.

The new-born babe very frequently in the first six weeks presents symptoms of partial or complete intestinal obstruction that demand surgical measures for relief. So often the formula feeding is blamed for a baby's poor start in this world, whereas some abnormality in the gastro-intestinal tract is responsible. Congenital abnormalities of the intestinal tract are being diagnosed more frequently than they used to be, thereby allowing the surgeon an opportunity to correct the faulty situation. Whereas during the last century these conditions were found mainly at autopsy, now we are able to recognize in them the indications for early surgery. The baby that presents no meconium at birth or during the first few hours of life, we argue, must have an obstruction; the one that vomits everything taken by mouth attracts immediate attention; the one that vomits clear fluid that does not contain bile suggests an obstruction proximal to the papilla of Vater; the one that passes clay-colored meconium suggests an atresia or occlusion of the bile ducts; the one that has "blue spells" coming on after feedings certainly suggests a diaphragmatic hernia; and projectile vomiting after two or three weeks of normal breast feeding probably indicates an obstruction due to pyloric stenosis. The presence of visible peristalsis and the character and quantity of the vomitus and stool aid materially in arriving at an early diagnosis.

The known causes of intestinal obstruction in the new-born are various, but of all perhaps the most interesting are the so-called complete occlusions or atresias and the incomplete or stenoses. Four years ago, I[1] had the opportunity of looking up the literature and reporting six cases of Duodenal Atresia and Stenosis from the records of the Children's Hospital, but I do not wish to take your time here on this subject alone, except to state that the atresias are reasonably common, occurring in a ratio of 1:9300 births. Perhaps this will not seem very frequent, but when one considers that harelips and cleft palates occur less frequently than atresias and stenoses of the gastro-intestinal tract, it is well to keep our eyes open. During the last six weeks of 1930, we had five of these cases on the Surgical Wards, two in the duodenum, two in the ileum, and one imperforate anus. Other causes of partial rather than complete obstruction are the congenital bands in the region of the liver and duodenum (thought to be a remnant of the early fetal attachment of the stomach to the anterior abdominal wall before its rotation takes place), malformation of the mesentery where the ileum passes through a hole in its own mesentery, mal-descent of the caecum where it fails to complete its rotation and lies at the hepatic flexure of colon, and torsion of the intestines about an incompletely absorbed omphalomesenteric duct. A Meckel's diverticulum rarely bothers in early infancy, although it is readily conceivable that it might. Of all the causes of intestinal obstruction in the small infant of six weeks or under, pyloric stenosis is the easiest to diagnose; the story, the peristalsis, the tumor, and the gradually developing starvation stools clinch the situation. Ladd[2] reported a mortality in nearly 200 cases of pyloric stenosis of 5½% following surgical treatment, quite a contrast to Holt's[3] figures from the Babies' Hospital, New York City, ten years previous of 17.4%.

Before leaving the subject of atresia and stenosis, it is well to mention the bile ducts. In 1928, Ladd[4] reported eleven cases from the Surgical Service at the Children's Hospital with six cures. The cure is entirely dependent upon the location of the atresia or stenosis and unless either the gall bladder or the common duct has a patent connection with the liver, success cannot be expected.

The infections in the peritoneal cavity of early infancy do not always give the well-known sign of spasm when pyogenic in nature, and therefore quite often mislead us. It is well to recall that the organisms found in the peritoneal cavity in these young infants are in the main only four: (1) streptococcus, (2) pneumococcus, (3) bacillus coli, and (4) tuberculosis. Peritonitis is always secondary to infection elsewhere and carried to the peritoneum by direct extension, as in omphalitis or vaginitis, or by the blood stream in a septicemia or overwhelming miliary tuberculosis. In the pyogenic peritonitis cases, we operate later than we used to, giving the patient all opportunity possible to build up its resistance and localize the infection if it will.

The abdominal and renal tumors and cysts found in early infancy are most commonly malignant, but should be all investigated before giving the parents a fatal prognosis. Those that are malignant are much more malignant than those abdominal malignancies found in adults. The common sites for these tumors are the omentum, the mesentery where cysts may be found of large dimension, the retroperitoneal lymphosarcoma, and the kidney where we have only two types, the embryoma and the neuroblastoma.

After the sixth week of life, the intestinal malformations do not play such a major rôle in the surgery of infants. However, it is possible for congenital bands, Meckel's diverticulum, malrotation of the cecum, and mesenteric malformations to cause trouble after the sixth

week. In fact, some adults who have developed normally and gone through life perfectly well, have been found to be suffering from such congenital anomalies late in life.

The peritoneal infections play a much more important part in the afflictions of the peritoneal cavity after six weeks of age than in earlier infancy. The pyogenic infections are seen more frequently and the so-called idiopathic peritonitis cases begin to occur during this period. Although called idiopathic, there is always a history of a primary and earlier infection, either of the throat or of the vagina, antedating the peritoneal story. It is well to recall also that appendicitis begins to appear at the age of one year. Approximately 2% of our cases of appendicitis at the Children's Hospital are in children during their second year of life, and about 90% of all cases in infants are ruptured before they come to the hospital. The tubercular peritonitis cases are apt to be fulminating and miliary in type and secondary to infection elsewhere, although the more chronic adhesive and the ascitic forms are occasionally seen. I can well recall one case I operated on that was diagnosed as intussusception with a typical history of spasmodic pains, bloody mucus in the stool, vomiting, and a palpable tumor, with low white count and temperature of 101°. At operation tuberculous peritonitis of the adhesive type was found. Needless to say, this baby of fourteen months died within a week of spreading tuberculous peritonitis.

Intussusception occurs most commonly in infants between the ages of six weeks and two years. Between 75 and 80% of our cases fall into this age group. Thanks to early recognition of these cases, brought about by Clubbe's[5] monograph in 1907, more and more are arriving early for operation. The success of surgical treatment is dependent entirely upon early diagnosis and operation, with the result today that the mortality rate is constantly falling. During the years 1928 and 1929, there were forty-one cases of intussusception admitted to our service, with only four deaths. All of these deaths were the result of too long delay, where the tumor was gangrenous and resection or ileostomy was necessary. In 1911, Ladd[6] reported in a careful statistical review a surgical mortality of 31%. Today, from the Children's Hospital records, taking consecutive intussusception cases in 1928 and 1929, the mortality is 9¾% and these figures are constantly being improved. A reduction in mortality from 31% to 9¾% in a period of less than twenty years bespeaks of progress in early diagnosis and treatment.

The tumors commonly found in this older group of infants are nearly all malignant and include the following: omental, mesenteric, retroperitoneal lymphosarcoma, ovarian carcinoma, and renal embryoma and neuroblastoma with metastases. Here again surgical investigation is indicated before a prognosis can in due fairness be given. The splenomegalies amenable to surgical treatment begin to make their appearance in older infancy, but it is well to state that the only groups that respond favorably to splenectomy are those of congenital hemolytic jaundice and chronic primary purpura[7]. Splenectomy is not indicated in the various types of anemia seen in infancy and accompanied with enlargement of the spleen.

CLASSIFICATION OF ABDOMINAL CONDITIONS FOUND IN INFANTS INDICATIVE OF SURGICAL TREATMENT

The new-born: Birth - 6 weeks.

A. Anomalies of G. I. tract. Symptoms of vomiting and obstruction, partial or complete.
   1. Atresias and stenoses of intestine, including imperforate anus.
   2. Atresias and stenoses of bile ducts.
   3. Congenital bands.
   4. Meckel's diverticulum.
   5. Mal-descent of caecum.
   6. Malformation of mesentery.
   7. Remains of omphalomesenteric duct.
   8. Congenital pyloric stenosis.
   9. Mesenteric and retroperitoneal cysts.
   10. Diaphragmatic hernia.

B. Infections.
   1. Pyogenic peritonitis secondary to omphalitis and vaginitis.
   2. Tuberculous peritonitis, miliary. (Examine vas and epididymis.)

C. Tumors and Cysts.
   1. Omentum.
   2. Mesenteric cyst.
   3. Retroperitoneal cyst.
   4. Lymphosarcoma.
   5. Renal tumors.
      a. Mixed embryoma.
      b. Neuroblastoma.

The baby 6 weeks - 2 years.

A. Anomalies.
   1. Chronic partial intestinal obstruction due to congenital bands.
   2. Meckel's diverticulum.
   3. Malformation of mesentery.
   4. Mesenteric cyst.

B. Infections.
   1. Pyogenic peritonitis, idiopathic and appendicitis.
   2. Tuberculous peritonitis, ascitic or adhesive.

C. Intussusception.

D. Splenomegaly.

E. Tumors and Cysts.
   1. Omentum.
   2. Mesenteric cyst.
   3. Retroperitoneal cyst.
   4. Lymphosarcoma.
   5. Renal tumors.
      a. Mixed embryoma.
      b. Neuroblastoma.
   6. Rhabdomyoma of bladder (Stone[8]).

CONCLUSIONS

The indications for abdominal surgery in earlier infancy are mainly the result of congenital anomalies. The infections of the peritoneal cavity found in the new-born are always secondary to infection elsewhere, and are spread either by direct extension from an omphalitis or vaginitis or through the blood stream, as in a septicemia or miliary tuberculosis. Tumors, usually very malignant in type, are found in early infancy.

In later infancy (from the sixth week to the second year) the anomalies of the gastro-intestinal tract play a lesser rôle in abdominal surgery. Peritonitis, either idiopathic or appendiceal in nature, begins to appear in later infancy; the tuberculous peritonitis cases, although they occur, are much rarer than twenty years ago. Intussusception is most commonly found in the well-nourished child between six weeks and two years of age. Splenomegaly in the infant is rare, but the only cases operable are those with chronic purpura or congenital hemolytic jaundice. The abdominal tumors of later infancy are mostly malignant in type.

Indicative of progress in the early diagnosis and surgical treatment of pyloric stenosis and intussusception during the last twenty years is the lowering of the mortality rate—in pyloric stenosis from 17.4% to 5.5%, in intussusception from 31% to 9.75%.

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CLINICAL AND LABORATORY EXPERIENCES WITH HIGH CARBOHYDRATE-LOW CALORIE DIETS IN THE TREATMENT OF DIABETES MELLITUS*

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BEFORE entering upon the proposed discussion of clinical and laboratory experiences with high carbohydrate-low calorie diets, may I, briefly, digress and present, in tabulated form, our experiences with diabetes at the Montreal General Hospital during the last year, as some of these experiences are not entirely unrelated to the present subject matter?

During the last year, 7,485 patients were admitted to the surgical and medical wards of this hospital. The conditions from which they were suffering were those usually seen in general hospital populations. There was 462 deaths—an incidence of 6.1 per cent. During the same period, 438 diabetics sought treatment. In order that the death-rate data may be comparable, we must subtract the diabetics from the total hospital population and treat each group separately. Since it is generally accepted that death from uncomplicated diabetes per se should now be uncommon, and in order to make the data still more comparable, we shall consider only those diabetics who were admitted to the hospital and sought treatment for conditions other than, or in addition to, diabetes. There were 260 such patients and amongst them there were 20 deaths —an incidence of 7.7 per cent. Their associated conditions and complications are recorded in Table 1. It will be observed that the conditions differed very little from those found in general hospital populations. For these conditions, as shown in Table 2, there were 130 operations, requiring 85 general anesthetics. In spite of this, as the next table shows (Table 3), the diabetes was well controlled, with very few exceptions, even in the cases which terminated in death; in 9 cases, at the time of death, the urines were not only free of sugar and acetone bodies, but the blood sugars were also normal; in 3 cases, the urines were free of sugar and acetone bodies, but the bloods showed mild degrees of hyperglycaemia; in 5 cases, there was glycosuria but no acetonuria; and in 3 cases only, treatment of the diabetes failed completely, in that ketosis and acidosis were present in addition to glycosuria. In other words, the death rate amongst our diabetics does not appear to have been appreciably greater than among the members of the general hospital population who had no diabetes.

Of course, the above are, to use a statistical term, "crude" death rates and a number of factors must be considered in their interpretation. For example, the two groups are not strictly comparable with respect to numbers; and when dealing with a small number of cases, it is well recognized that percentage values, when viewed alone, may lead to wrong impressions. The death rates should also be adjusted, amongst other factors, at least, for age and the conditions to which these diabetics were exposed. Interesting, therefore, as these data may be, and though they correspond to those generally recorded in medical literature, they are not very instructive. In a final analysis, such death rates can, at best, be regarded as isolated statements of fact, with limited significance. The most reliable index of the true progress resulting from present-day treat-

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ment of diabetes is found in calculations of ratios of actual to expected deaths. Calculated for the entire population of the clinic for diabetes in this hospital, last year, the ratio was 118 per cent. of the normal. This is highly satisfactory amongst diabetics in the country as a whole, all diabetics would be accepted and the premiums would be increased only to the extent of making the diabetic pay an amount as though he were two years older than his actual age at the time

TABLE 1

SHOWING ASSOCIATED CONDITIONS AND COMPLICATIONS AMONG DIABETICS ADMITTED TO MEDICAL AND SURGICAL WARDS OF THE MONTREAL GENERAL HOSPITAL DURING 1930.

Condition	No.
Abortion	
(incomplete)	1
Abscess	
(brain)	1
(breast)	1
(dental)	2
(foot)	1
(hand)	1
(perinephritic)	1
(subcutaneous)	1
(submental)	1
(thigh)	1
Acidosis	
(precoma)	9
Anaphylactic	
(shock)	1
Appendicitis	
(acute)	4
(chronic)	9
Arthritis	
(acute)	3
(chronic)	4
Asphyxia	
(traumatic)	1
Asthma	1
Bronchiectasis	1
Bronchitis	2
Calculi	
(biliary)	1
(renal)	1
Carbuncle	8
Carcinoma	
(breast)	2
(of the colon)	1
(lip)	2
(stomach)	1
(uterus)	1
(ovary)	1
Cardiac Failure	4
Cardiorenal	10
Cardiovascular	49
Cataract	8
Cellulitis	
(foot)	4
(hand)	1
(leg)	1
Cerebral Haemorrhage	1
Cerebral Spasm	1
Cerebral Thrombosis	1
Cholelithiasis and *Cholecystitis*	12
Choroiditis	1
Cirrhosis of Liver	2
Coma	
(diabetic)	5
(insulin)	3
Congenital Abnormalities of Kidney and Ureter	1
Conjunctivitis	
(acute)	1
Coronary	
(thrombosis)	1
Cyst	
(pancreatic)	1
Cystocele-Rectocele	7
Dental Caries	8
Dermatitis	
(chronic)	8
Dilatation of the Stomach	
(acute)	2
Dislocation	
(humerus)	1
Ectodermal Dystrophy	1
Emphysema	1
Empyaema	1
Erosion Cervix Uteri	2
Fibrosis of the Lungs	1
Fistulae in Ano	1
Fracture	
(hand)	2
(humerus)	1
(olecranon)	1
(pelvis)	2
(radius)	1
Gangrene	
(lower extremities)	16
Glaucoma	1
Gout	1
Haemochromatosis	1
Haemorrhoids	1
Hepatitis	
(acute)	1
(chronic)	2
Hernia	
(inguinal)	3
(ventral)	1
Hyperthyroidism	2
Ichthyosis	
(congenital)	1
Intestinal Obstruction	1
Iritis	1
Keratoma	1
Laryngitis	
(acute)	1
Mastoiditis	
(acute)	3
Meningitis	
(epidemic)	1
Myxoedema	1
Nephritis	
(chronic)	30
Neuritis	5
Oedema of Lungs	1
Onychia	1
Otitis Media	
(acute)	1
Pancreatitis	
(acute)	1
(chronic)	1
Panophthalmitis	2
Papilloma	
(bladder)	1
Peritonitis	
(streptococcus)	1
Pleurisy	5
Pneumonia	
(lobar)	6
Polypi	
(bladder)	1
(antrum)	1
Prostatic Hypertrophy	3
Pyelonephritis	2
Pylephlebitis	2
Retinitis	16
Septicaemia	
(staphylococcus)	2
(streptococcus)	2
Sinusitis	3
Syphilis	1
Thrombophlebitis	1
Tonsillitis	3
Tuberculosis	
(kidneys)	1
(lungs)	7
Ulcer	
(duodenal)	1
(rodent)	1
(varicose)	2
Uterus	
(fibroid)	2
Xanthosis	2

Expressed in terms of insurability of the individual, life assurance companies would apply to a group of people with the aforementioned ratio of actual to expected deaths a rating of about two years. In other words, if life assurance companies could be assured of such a ratio of application. Of course, life assurance companies will not accept diabetics, as a rule, for the simple and sufficient reason that the ratios of actual to expected deaths in countries, as a whole, are much larger than those found in hospital clinics; as a matter of fact, the death rates

TABLE 2

OPERATIONS ON DIABETICS DURING 1930

Total 130

Abortion	1	Haemorrhoidectomy	1	Reduction of fracture dislocation	3
Amputations		Herniotomy	5	Radium implantation	6
Extremities	12*	Hysterectomy	1	Skin graft	2
Breast	2	Incisions		Teeth extraction	8
Appendectomy	8	Abscess	25†	Thyroidectomy	1
Biopsy	1	Glands of neck	1	Tonsillectomy	3
Bronchoscopic examination	1	Laparotomy	4	Transfusion (blood)	7
Carbuncles	3	Mastoidotomy	3	Trephine (for glaucoma)	1
Cauterization (cervix)	2	Nephrectomy	2	Watkins interposition of uterus	1
Cholecystectomy	8	Plastic repair of stump	5		
Cystocele-Rectocele	2	Polyp (removal)	1		
Cystoscopic	2	Prostatectomy			
Excision (glands)	3	1st stage	2		
Fistula in ano	1	2nd stage	2		

*Includes reamputations. †Includes reincisions.

ANAESTHETICS

Duration (minutes)	Ether	N_2O+Ether	N_2O
- 15	1	3	23
16- 30		4	13
31- 45	4	1	10
46- 60	3	1	12
61- 75	5		
76- 90	5		2
91-105			
106-120	3		
121-135	2		
136-150	1		
151-165	1		

SUMMARY

Ether	25
N_2O	60
N_2O+ether	9
Spinal	4
Local	19
Amytal	5
Total	122

TABLE 3

DEATHS

Surgical	7
Medical	13

CONTROL OF DIABETES AT TIME OF DEATH

No.	Urine		Blood Sugar
	Sugar	Acetone	
9	0	0	Normal
3	0	0	Slightly increased
5	+	0	Increased
3	+	+	Increased

IMMEDIATE CAUSES OF DEATH

Cause	Incidence
Carbuncle	1
Carcinoma	4
Cardiovascular	4
Cerebral haemorrhage	1
Chronic nephritis	1
Cirrhosis of liver	1
Haemochromatosis	1
Mastoiditis	2
Pneumonia	1
Pylephlebitis (suppurative)	1
Septicaemia (gangrene)	3

in large populations from diabetes today are identical with those prior to the introduction of insulin therapy.

With regard to the present subject matter, however, the points of interest are shown in the next table (Table 4). Here, we find that cardiovascular-renal disease accounted for practically one-third of all of the associated conditions and complications and, as a matter of fact, accounted for one-half of the total number of deaths. Tuberculosis, so prevalent in the days prior to the advent of insulin, was responsible for a very small proportion of the associated conditions and complications and there were no deaths in the wards, nor was active tuberculosis found in any of the autopsies upon diabetics. The small incidence of this disease now is still more strikingly demonstrated when we exclude questionable tuberculosis, that is, the eighteen patients in whom suggestive tuberculous lesions were accidentally discovered, because of our routine practice of periodic x-ray examinations of the chest, but in whom there were no clinical signs or symptoms of active disease. In other words, from the experiences shown in these tables, it would appear,

if we could lower the incidence of cardiovascular-renal disease, that our diabetic death rate would correspond to that of normal populations. This, it appears, may now be possible, with the diet presently to be discussed, as the following observations suggest.

Theoretically, at least, there is much to support the view that the diets to which diabetics have been exposed in the past were largely responsible for the high incidence of cardiovascular-renal complication. I refer to the effects of such diets upon fat metabolism, as reflected in the cholesterol content of blood plasma. This idea of relationship between cardiovascular disease and excess blood cholesterol is not new, as the literature shows. Whether cardiovascular-renal disease can be due directly to high concentrations of blood cholesterols, or whether the high concentrations of cholesterols and cardiovascular-renal disease have a common exciting agent is problematical and of academic interest only. It is, however, suggested that, if our treatment would aim at, and could result in, lowering of blood cholesterol, it would also, probably, influence the exciting agent responsible for cardiovascular disease. It may therefore, be observed that the most striking metabolic effect of this new diet is an early and sharp decrease of plasma cholesterol.

The above view may not be in accordance with that generally held and, as a matter of fact, it is admitted that in individual cases, the relationship between cholesterol and cardiovascular disease does not apply. This view, however, differs in one respect from many generally held in medicine in that it is based upon experimental and statistical studies and can be proved and disproved by further observations of a similar nature. I refer, particularly, to a recent report of an investigation made in our hospital[1]. It is not the result simply of traditional belief, or "arm chair philosophy", proof of which is remotely possible.

TABLE 4

INCIDENCE OF CARDIOVASCULAR DISEASE AND TUBERCULOSIS

Cardiovascular-Renal Disease

Diagnosis	No.
Cardiac failure	4
Cardiorenal	10
Cardiovascular	49
Cataract	8
Cerebral haemorrhage	1
do spasm	1
do thrombosis	1
Coronary do	1
Gangrene	13
Chronic nephritis	30
Retinitis	16
	134

Tuberculosis

Diagnosis	No.
Kidney	1
Lung	7
Pleurisy	4
*Doubtful	18
	30

Total admissions	408
Cardiovascular	32.8%
Tuberculosis	7.3%

*Suggestive x-ray: no other signs and negative history.

May I now turn to the discussion of our experiences with high carbohydrate-low calorie diets? For those who are not familiar with the recent changes in the dietetic management of the diabetic, a brief outline may here be permitted.

As stated in our first report[2], the idea is not new. The literature shows that there has been a gradual tendency to increase the carbohydrate content of the diet of the diabetic. Without alteration, however, in the proportions of the other food materials, namely, fat and protein, this practice must naturally result, and has resulted, in increased use of insulin, either with regard to amount or frequency of administration.

There are clinical and experimental reasons for the present change and the observations of Joslin's clinic, those of Geyelin, and our own experiences form the basis of the diet we have utilized. First, as Joslin points out, it is more rational to tend towards, than to deviate from, the standard diet of healthy people; secondly, in those countries where diets consist largely of carbohydrates, the diabetes is usually mild and, lastly, the diets of those diabetics who have lived long, whether they showed sugar or not, were those whose carbohydrates have never been long reduced to a very low quantity. In our clinic, the carbohydrate content of the diabetic diets have gradually been increasing, for an additional reason, namely, the observation that potential diabetics can be made active, and mild diabetes can be made severe, by too rigid restriction of carbohydrates. To quote from our first report[2], our observations were as follows:—

We have now, in our clinic, a large and increasing number of patients, some of whom have very mild, but definite, diabetes, and the most one can positively state about the remainder of this group, judging from histories and blood sugar time curves, is that they are potential diabetics. The entire group, when first reported, included 359 patients. In the majority of these cases, glycosuria was accidentally discovered, either during routine examination for some other physical ailment, or while applying for life assurance. As they were accumulating, an attempt was made to measure the effects of subjecting some of these persons to rigid carbohydrate restriction. Our routine in these cases was to obtain blood sugar time curves when the patients were first seen and then, again, at six months' intervals, or as near to that period as was practically possible. In the study of these

cases, and for purposes of control, diets were given to one-half of the group only. The subjects were selected alternately, in order to conform to random sampling. The diets consisted, on the average, of 50 grams carbohydrate, 150 grams of fat and 50 grams of protein. Though the total number of this group of patients was 359, the data of 235 only could be utilized, as the remainder were either very irregular in their appearance at the clinic or, between visits, had their dietary habits altered. Briefly*, the findings of interest here were as follows:—

The incidence of improved carbohydrate tolerance, judged by the blood sugar time curves, was definitely greater in the treated than in the non-treated group. A disturbing finding, however, was that, in spite of diets, not only was no increase of carbohydrate tolerance noted in some of the treated cases, but a decrease was actually found. When, in order to find an explanation of this phenomenon, the data were correlated, amongst other factors, with body weight, it was obvious that the great majority of individuals who had not improved belonged to the normal and underweight groups.

Since, with respect to the underweight group particularly, the diets could hardly be said to have been of an undernutrition nature, the tentative conclusion drawn was that either the low carbohydrate or the high fat content of the diets was responsible for the decreased tolerance. In view of this observation, the diets of these patients were so altered as to relate carbohydrate content to body weight. Overweight diabetics were still given 50 grams of carbohydrate, and whether the remaining patients were given 75, 100, 125 or 150 grams depended upon the ratios of actual to expected body weights. (The expected body weights were taken from standard height-weight tables.) Subsequent blood sugar time curves showed that with the above-mentioned alterations of diet alone, carbohydrate tolerance improved in the majority of cases. (It might here be observed that as a control the fat and protein contents of the diets were not altered.)

The above-mentioned results, as those referred to in our first communication, fit in with the generally accepted view that, to maintain insulin production at a maximum, the individual must have a reasonable amount of sugar daily. In other words, the ingestion of sugar stimulates the mechanism of its utilization.

The final experiences which led to the present diet were those reported by Dr. Geyelin to the writer personally. Dr. Geyelin's patients were subjected to diets of high carbohydrate content; but the caloric values were such as to correspond to maintenance diets. In order to conform to maintenance diets, it is obvious that the fat content had to be restricted. The results were highly satisfactory. It is important to point out here that Geyelin's diets differ fundamentally from those previously reported by other workers, which, in addition to being high in carbohydrates, were, also, high with respect to calories.

In view of the above observations, the idea occurred to the writer that still better results might be possible by making use of the principle of undernutrition. In order to conform to this principle and, at the same time, to give individuals high carbohydrate diets, the fat content had to be kept at a very low level. The immediate results of this treatment were striking. It was astonishing to find the amounts of carbohydrates it was possible to give diabetics, even without the use of insulin.

The term undernutrition, as applied now, is used differently than it was in the days prior to the advent of insulin. At that time, undernutrition meant keeping an individual in a physical condition incompatible with his daily duties. By the term undernutrition as used now, I mean keeping the individual about 5 to 10 pounds under that which corresponds to the normal height-weight relationship. On this basis, diabetics may now receive as much as 300 grams of carbohydrates a day. The average for our entire group of 164 patients thus far observed is 246 grams. The other results, clinical and experimental, are as follows:—

First, the patients are satisfied; they feel better; fatigue and digestive disturbances are much less common. The diets, also, as stated before, eliminate the necessity of special articles of food (bran muffins, gelatines, etc.) which, when continued for a long period of time, become distasteful. Lastly, with regard to the undernutrition phase, it may here be noted that, with very few exceptions, when patients on the borderline with respect to the use of insulin are given the option of taking insulin or keeping their body weights slightly below the normal, they choose the latter course.

In our original report, detailed data of ten cases only were given. Today I wish to report the results of 164 cases. The combined data are summarized in Table 5, in terms of averages. It will be noted (columns 2 and 3) that the average carbohydrate content of our diets has increased from 89 to 246 grams and that the total glucose available from carbohydrate, fat and protein (calculated on the basis of $G = C + 0.1\ F + 0.58\ P$) has increased from 130 to 295 grams (columns 4 and 5). This table (columns 6 and 7) also clearly demonstrates the application of the principle of undernutrition; the average caloric content of our present diets is definitely lower than that of former treatment; the present average is 1774 calories per day, compared with the former diets of 1906 calories.

*The details of this investigation, the greater part of which is of no particular interest here, form the subject matter of a separate report.

EFFECTS OF DIET UPON BLOOD SUGAR

With the above changes there have apparently been no alterations of the average blood sugars (columns 8 and 9). In the interpretation of blood sugar data, it is obvious that one must consider the readiness with which these values may fluctuate. It may, however, be observed that the earliest manifestation of disturbed carbohydrate metabolism is usually alteration of blood sugar. As is well known, all other phenomena may be misleading; the clinical picture may mislead for weeks, months and even years; disturbance of fat metabolism, as reflected in plasma cholesterol values may, also, not be detected for weeks or months; and glycosuria may even be delayed, because of an intervening high renal threshold for glucose.

EFFECTS OF DIET UPON INSULIN DOSAGE

Though at first, in the few cases observed, it appeared that our insulin dosage was less, with further observations this does not appear to be the case. An important fact, however, and the most astonishing, is that the average amount of insulin has not increased. This is shown in columns 10 and 11 of the same table. This result differs definitely from those obtained with the older high carbohydrate diets. As Dr. Joslin told me some time ago, though he has met with a number of patients who were given high carbohydrate diets, the insulin used in each case was quite considerable. Dr. Joslin also stated that his patients take more insulin as time goes on, but not quite so much as patients with the high carbohydrate diet. Our diets must, therefore, differ fundamentally from those used in the past. The difference is reflected in the metabolic data obtained, as will now be shown.

EFFECTS OF DIET UPON RESPIRATORY QUOTIENTS

Perhaps the most significant data in this table are recorded in columns 12 and 13, namely, the respiratory quotients. It will be observed that the average values have not been altered by the use of increased amounts of carbohydrate. All of these quotients were obtained in the postprandial state—15 hours after the evening meal the day before the test. To appreciate the significance of these data, and for comparative purposes, Tables 6 and 7 are shown. These tables are reproduced from our first report of experiences with insulin in 1923[4].

In Table 6 are recorded the respiratory quotients of twenty normal individuals and also those of diabetics. Those of the diabetics are related to glucose tolerance. It will be noted that, although in isolated instances, a diabetic may have shown a greater respiratory quotient

TABLE 5

COMPARATIVE RESULTS (AVERAGES) OF TREATMENT WITH OLD AND NEW DIETS

No.	Carbohydrate		Available Glucose		Calories		Blood Sugar (per cent.)		Insulin (units)		R. Q.		Plasma Cholesterol	
	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New	Old	New
47	50	218	94	264	1752	1652	0.137	0.125	16	14	0.73	0.77	0.276	0.189
26	75	236	115	284	1850	1736	0.143	0.156	26	28	0.77	0.76	0.247	0.176
53	100	254	140	304	1950	1820	0.132	0.143	21	23	0.76	0.80	0.262	0.200
29	125	272	165	320	2050	1904	0.157	0.169	38	36	0.79	0.78	0.240	0.169
9	150	290	190	344	2150	1988	0.161	0.133	21	18	0.80	0.76	0.220	0.184
Combined average														
164	89	246	130	295	1906	1774	0.141	0.144	23	23	0.76	0.78	0.257	0.187
Column														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

TABLE 6

AVERAGE RESPIRATORY QUOTIENT OBTAINED IN NORMAL PERSONS

Normal respiratory quotients			Comparison of the tolerance of glucose with the respiratory quotient in diabetic persons (Woodyatt)			
Case Number	Basal Metabolic Rate	Respiratory Quotient	Case Number	Glucose Tolerance	Respiratory Quotient	
6427	4	0.816	1739	56	0.714	
6497	2	0.814	2602	58	0.792	
6353	6	0.836	4146	62	0.732	
6100	2	0.809	955	63	0.714	
6286	4	0.798	818	66	0.719	
5958	7	0.817	543	72	0.768	0.738
5741	9	0.842	5135	77	0.730	
5658	7	0.810	1157	82	0.764	
6210	3	0.826	30	84	0.729	
6068	2	0.836	844	85	0.742	
6148	2	0.767	352	96	0.782	
6100	2	0.827	704	98	0.803	0.758
6161	11	0.901	1193	104	0.796	
5751	5	0.834	352	114	0.794	
6063	2	0.906	1700	116	0.732	
5957	3	0.811	940	129	0.787	
4969	6	0.795	1154	132	0.823	
5621	5	0.831	5601	147	0.746	0.779
5792	3	0.759	2423	169	0.764	
5400	5	0.792	5642	216	0.826	
			2363	219	0.799	
			2968	235	0.838	
			5961	240	0.801	
Average		0.811	6055	242	0.814	0.807

than another whose glucose tolerance was greater, when the cases were grouped with respect to glucose tolerance (50 to 75 grams, 75 to 100 grams, 100 to 125 grams, etc.) the greater the tolerance, the greater was the respiratory quotient in the fasting state. In other words, the less severe the diabetes, the more the patient was able to store glucose as glycogen, and thus able to show a greater respiratory quotient some time after ingestion of food. This phenomenon is perhaps best demonstrated in the next table (Table 7). Here are shown the results of one

TABLE 7

INFLUENCE OF INSULIN UPON RESPIRATORY QUOTIENT IN THE FASTING STATE (Hosp. No. 6163/22)

Date	*Diet* Total available glucose	Respiratory Quotient	Remarks
Dec. 8	75	0.762	Insulin on day before
9	"	0.748	No " " " "
10	"	0.734	" " " " "
11	"	0.778	Insulin " " "
12	100	0.769	" " " "
13	"	0.784	" " " "
15	125	0.761	" " " "
16	"	0.779	" " " "
17	150	0.792	" " " "
18	"	0.798	" " " "
20	"	0.787	" " " "
21	"	0.795	" " " "

of our first experiments with insulin. Glucose storage and respiratory quotients were estimated periodically, following institution of insulin treatment. It will be noted that, with time, the respiratory quotient increased and, when compared with the diabetic data in Table 6, eventually corresponded to that of a person whose tolerance would be approximately 175 grams of glucose.

The significant conclusion from these data and the respiratory quotients of the patients on the high carbohydrate-low calorie diet seen in Table 5, is that our diabetics are not being overfed and, in view of the relationship between total calories, body mass and pancreatic function, established by Allen, it is suggested that the application of the principle of undernutrition to our treatment accounts largely for the good results.

This has not been an invariable result; in a number of cases we have found increased respiratory quotients, but the average remains unchanged. In other words, though these patients are receiving diets of relatively very high carbohydrate content, the total amount of sugar given per day is being oxidized completely during the same period; none is left for storage and thus there is little strain upon the insulin producing mechanism.

Interesting, though not as yet explainable, are the rather peculiar results observed in the respiratory metabolism *following meals*. Regularly, daily, in the morning between 10.00 and 12.00 noon, respiratory quotients, greater than unity, ranging between 1.1 and 1.5 have frequently been observed. These quotients were, also, associated with increased heat production ranging between 15 and 30 per cent. above the basal level. Over-ventilation, poor coöperation on the part of the patient, and the numerous other factors (technical, insulin hypoglycaemia, etc.) which might influence respiratory quotients have been considered and excluded. These are not respiratory quotients merely found at the mouth; in my opinion, they reflect the true metabolism in the tissues. The results of one case particularly are worthy of note here. The case was that of a girl, 17 years of age who, because of long experience, made an ideal experimental subject. She has had diabetes for 8 years and though she is a very poor patient with regard to following treatment when not in the hospital, she coöperates ideally in experimental studies of the above nature. The data are shown in Table 8.

Is it possible that these high postprandial respiratory quotients are due to the rapid storage of sugar and its conversion, at least partly, into fat, because of the small amount of natural fat in the diet? Bauer's experiments may here be referred to[5]. This author showed that if a carbohydrate meal was given 12 hours before the test, the administration of 85 grams of glucose would cause an increase of 30 per cent. above the basal metabolism.

An increase of heat production, that is, expenditure of energy, may hardly seem compatible with storage of sugar, from the point of view of economy. When shown these data, however, Professor Graham Lusk made the observation that it is not quite clear whether the deposition of glycogen takes place without specific dynamic action, and quoted experiments being carried out in his laboratory at the time.

It will be noted, that, differing from the usual experience with this diet, the respiratory quotients of the fasting periods increased with time. In addition to the gradually increasing respiratory quotients, the heat production in the basal periods also increased. The explanation of this increase is probably the return to a normal nutritional state. (As is well recognized, undernutrition tends towards a low basal metabolic rate. A striking example of such a case was recently reported from our hospital[6].) While in the hospital, the patient gained weight and it is interesting to note that the increase of metabolism was practically proportional to the gain of weight, i.e., increase of active protoplasmic mass. Incidentally, this patient is excluded from the general group because of the unreliability of data when she is not in the hospital. Some idea of the unreliability may be gained from the fact that she has been in coma eleven times.

TABLE 8

STUDIES OF RESPIRATORY EXCHANGE IN CASE NO. 1259/30

Date	Period*	Respiratory exchange† Oxygen	Respiratory exchange† Carbon dioxide	Urine nitrogen gms. per 24 hrs.	Respiratory quotient Total	Respiratory quotient Non-protein	Heat production Calories per hour	Heat production S. D. A.‡	Kgms. body weight
Mar. 11	0	10.00	7.36	8.24	0.736	0.719	46.5		28.5
	90	11.00	9.31		0.846	0.856	52.8	13	
	180	10.60	10.71		1.010	1.060	52.3	12	
12	0	9.64	7.32	9.16	0.759	0.745	45.0		28.3
	90	10.32	8.80		0.852	0.866	49.5	10	
	180	10.03	8.90		0.887	0.911	48.5	8	
13	0	10.65	8.08	8.10	0.758	0.748	50.0		28.5
	90	11.18	10.74		0.960	0.995	55.2	10	
	180	11.82	12.19		1.031	1.077	58.5	7	
14	0	10.90	8.31	6.35	0.762	0.749	51.3		28.7
	90	11.88	12.13		1.021	1.054	59.1	15	
	180	12.32	16.18		1.313	1.388	61.3	19	
17	0	11.32	8.40	4.36	0.742	0.735	53.1		28.9
	90	12.96	14.47		1.116	1.145	64.8	22	
	180	13.13	15.58		1.186	1.221	65.7	24	
18	0	11.26	9.35	7.94	0.830	0.835	53.8		29.5
	90	13.51	13.27		0.982	1.012	67.1	25	
	180	12.72	15.53		1.220	1.296	63.1	17	
19	0	11.54	9.54	6.66	0.826	0.830	55.3		29.6
	90	11.89	11.08		0.931	0.952	58.5	6	
	180	13.73	18.45		1.343	1.417	68.4	24	
20	0	11.31	9.77	6.20	0.863	0.873	54.6		30.0
	90	12.55	16.47		1.312	1.383	62.5	14	
	180	13.01	12.56		0.965	0.987	64.6	18	
24	0	11.20	9.41	7.47	0.840	0.847	53.8		29.9
	90	12.32	13.68		1.110	1.164	61.1	13	
	180	11.54	14.00		1.213	1.291	57.2	6	
25	0	11.00	9.20	4.36	0.836	0.840	52.9		30.2
	90	11.99	12.37		1.031	1.054	59.9	13	
	180	12.54	15.59		1.243	1.284	62.6	18	
27	0	11.41	10.41	3.08	0.912	0.920	56.1		30.3
	90	13.01	15.81		1.215	1.241	65.2	16	
	180	13.35	17.56		1.315	1.346	66.9	19	
29	0	11.82	10.38	4.91	0.870	0.886	57.6		30.7
	90	14.30	14.19		0.992	1.009	71.5	24	
	180	14.78	14.25		0.964	0.978	73.6	28	
31	0	12.27	10.85	1.90	0.884	0.887	60.1		30.8
	90	13.37	15.14		1.132	1.144	67.2	12	
	180	13.62	16.56		1.215	1.230	68.5	14	
Apl. 2	0	12.80	11.06	2.01	0.864	0.867	62.3		31.1
	90	16.77	16.77		1.005	1.006	84.4	35	
	180	16.15	19.27		1.193	1.205	81.2	30	
4	0	12.16	11.19	2.38	0.920	0.840	58.7		30.9
	90	14.47	13.49		0.932	0.938	71.7	22	
	180	15.44	13.68		0.852	0.856	75.0	28	
7	0	12.46	10.94	1.30	0.878	0.880	60.8		31.0
	90	15.82	13.51		0.855	0.916	73.2	20	
	180	16.82	16.55		0.983	0.987	84.5	39	
9	0	12.00	11.08	1.68	0.923	0.928	59.4		31.6
	90	14.64	12.65		0.864	0.866	71.4	20	
	180	15.60	12.98		0.832	0.832	75.4	27	
11	0	12.84	10.99	1.38	0.855	0.857	62.5		31.7
	90	13.23	16.71		1.263	1.275	66.6	6	
	180	13.10	15.85		1.209	1.220	65.9	5	

*In each case, observations were made in the fasting state and approximately 90 and 180 minutes after food and 120 and 210 minutes after insulin. Collection of gas samples commenced 10 to 15 minutes before the end of each period.

†Litres per hour.

‡Percentage increase above basal period. (Specific dynamic action.)

EFFECTS OF DIET UPON CHOLESTEROL CONTENT OF BLOOD PLASMA

The influence of this diet upon fat metabolism is the most striking of all metabolic data; almost invariably, and shortly after the institution of this diet, there has occurred, at least so far, a marked decrease of the cholesterol content of blood plasma. As the determination of this blood constituent has been for some years routine in our laboratory on all diabetics, it is interesting here to observe that the recent change from the values usually noted was sufficiently marked to cause the technicians to question their results. Low values are now found so constantly as to make doubtful the value of continuing this test as a routine; it yields little information. We shall now probably use it only when patients are first seen.

Some time ago, Dr. Joslin was shown the results of our first 250 cholesterol determinations following the institution of this diet. These are shown in Table 9. The marked incidence of low values is obvious. It will be noted that in about 80 per cent. of the cases, the plasma cholesterol was 0.200 per cent., or under, and practically one-third were under 0.150 per cent. That this was not accidental is shown by the following 250 determinations, which include all data to December 24, 1930. For comparative purposes, these are also recorded in the same table.

TABLE 9

CHOLESTEROL CONTENTS OF BLOOD PLASMA FOLLOWING HIGH CARBOHYDRATE-LOW CALORIE DIETS

Cholesterol (per cent.)	Incidence Group 1 Oct. 10	Group 2 Dec. 24
-0.100	9	14
0.101-0.150	72	104
0.151-0.200	118	76
0.201-0.250	40	31
0.251-0.300	5	14
0.301+	6	11
A. M.	0.170	0.163

With regard to the influence of this diet upon fat metabolism, the results of animal experiments are of interest. Recently, I had my attention drawn by Mr. Eldon M. Boyd to some work which was done in Professor Bloor's laboratory and, with Professor Bloor's kind permission, I am able to quote his, as yet, unpublished data. Dogs were fed biscuits of high carbohydrate-low fat content of the following percentage compositions:—

Carbohydrate	61.8
Fat	2.56
Protein	17.91

The fatty acid to glucose ratio of this diet which was 0.15 (according to G = C + .18 + .58 P) did not differ very greatly from the average ratio of our diet, namely, 0.30.

Lowering of the phospholipoid content of the blood was noted in about one-half of the animals observed and the values ranged between 50 to 70 mgms. per 100 c.c. Two weeks later, the animals, during the interval, being allowed to live upon "hospital scraps", the phospholipoids returned to about 200 mgms. About three months later, further feeding with the biscuit, though it did not bring the values down to the original low levels, lowered the phospholipoids somewhat. Cholesterol values varied in the same direction, but not to the same extent as the phospholipoids.

Dr. Joslin, when shown our data, wisely asked, "What would happen if the cholesterol drop was below the normal level? Is there any danger?" I put this same question to Dr. Bloor.

EFFECTS OF DIET UPON URINARY EXCRETION OF NITROGEN

The data which represent urinary excretion of nitrogen are also of interest. Here, again, we note a fundamental change in the metabolism of the diabetic. As is well recognized, with the diets of the past, patients were kept in nitrogen equilibrium only with great difficulty, if at all; but a practically constant finding with the present diet is nitrogen *Retention*, at least in the early stages. This, in most instances, is not very marked, but I should like to present the results of one particular case, since, as far as I know, there are no such records in the literature. These are shown in Table 10.

TABLE 10

SHOWING INFLUENCE OF HIGH CARBOHYDRATE-LOW CALORIE DIET UPON DAILY EXCRETION OF URINARY NITROGEN

(Subject Hosp. No. 1259/30)

Date	Urine-N (gms.)	Date	Urine-N (gms.)	Date	Urine-N (gms.)
Mar. 11	8.24	Mar. 26	No test	Apl. 10	3.10
12	9.16	27	3.08	11	1.38
13*	8.10	28	5.90	12	1.57
14	6.35	29	4.91	13	No test
15	9.00	30	No test	14	0.88
16	6.50	31	1.90	15	1.53
17	4.36	Apl. 1	1.90	16	1.22
18	7.94	2	2.01	17	0.99
19	6.66	3	2.48	18	1.44
20	6.20	4	2.38	19	0.58
21	5.46	5	1.56	20	1.81
22	4.85	6	No test	21	0.81
23	3.26	7	1.30	22	1.61
24	7.47	8	1.47	23	1.96
25	4.36	9	1.68		

*End of control period on old diet.
Both old and new diets contained 50 grams of protein (8.0 gms. nitrogen).

The nitrogen excretions were so low as to make doubtful the technique. Errors of technique are, however, definitely excluded. All determinations were made by the macro-Kjeldahl technique, which has always been our routine. (We do not use any of the micro- or

colorimetric methods for this work.) Every possible source of error was excluded; the 24 hour samples of urine were accurately collected; urea added to the urine could be recovered quantitatively and, in addition to this, parallel determinations were made in other cases. Significant, also, is the fact that these low values were found daily during a period of over one month. Note that, on three occasions (April 14, 19 and 21), the excretion was less than one gram of nitrogen per day. It is hardly necessary to observe here that there was no renal disease; there was no albuminuria, the volumes of urine were normal and there was no nitrogen retention in the blood (blood urea nitrogen = 18 mgms. per 100 c.c.).

It is very difficult to explain these extremely low values. This happens to be the same patient whose respiratory metabolism data are shown in Table 8. Her skeletal growth is abnormal; she is very much under height (139 cms.). Professor Graham Lusk, when shown these data, made the interesting suggestion that these exceptionally low values may be the result of under-development, and drew my attention to the only other, and somewhat similar, data in the literature, namely, those of Weirzuchowski and Ling, who observed a two-thirds retention of nitrogen in a stunted hog; when the nitrogen intake was 6 grams daily, the nitrogen excretion in the urine was only 6 grams for three days.

Dr. Geyelin suggested a somewhat similar explanation, namely, rapid growth following a diet which conforms more to the normal than that to which the girl was exposed in the past. Dr. Geyelin suggests that, as the tissues which are chiefly concerned with growth are those which demand nitrogen, and as there was a tendency to loss of nitrogen with the older diet, growth was delayed over a long period of time due to improper feeding; when more natural feeding was resumed, the individual had to make up for lost time and opportunity; therefore, the striking nitrogen retention. Dr. Geyelin would, also, explain the respiratory quotients above unity on the same basis.

To some, demonstrations of experiences with individual cases appear more conclusive than the use of average values of large group studies. Tables 11 and 12 are, therefore, included. These show the course of events in the ten patients to whom the high carbohydrate-low calorie diets were first given and who have now been under observation for over six months. Table 11, for comparative purposes, is reproduced from our first report. It will be observed that with the replacement of old diets by those of slightly less calorie values, but much higher carbohydrate contents, the diabetes was well controlled with less insulin in 7 cases. The latest data of these same cases are shown in Table 12. Briefly, it will be noted that in four patients, the carbohydrate contents of the diets were further increased. In one case only (227/30) was it necessary to increase the

TABLE 12

PROGRESS OF 10 PATIENTS WHO HAVE BEEN ON THE HIGH CARBOHYDRATE-LOW CALORIE DIETS FOR OVER 6 MONTHS

	Diet (grams COH)		Insulin (units)		Blood Sugar* (per cent.)		Plasma Cholesterol* (per cent.)	
	Old	New	Old	New	Old	New	Old	New
227/30	236	272	5	10	0.192	0.111	0.187	0.189
6037/29	236	236	40	40	0.158	0.188	0.151	0.185
5158/25	200	218	40	40	0.147	0.097	0.200	0.214
3954/24	218	218	10	10	0.122	0.105	0.244	0.222
5135/21	218	218	30	20	0.172	0.139	0.225	0.228
5053/28	236	254	40	40	0.174	0.238	0.151	0.111
1269/30	236	254	10	5	0.117	0.111	0.211	0.131
241/27	218	218	30	30	0.115	0.282	0.212	0.161
3388/27	236	236	40	40	0.153	0.117	0.111	0.126
2044/26	236	236	20	15	0.227	0.215	0.196	0.177
Résumé:								
Increase	4		1		3		3	
Decrease	0		3		7		5	
No change	6		6		0		2	

*Allow 5 mgms. error.

TABLE 11

RÉSUMÉ OF RESULTS OF FIRST TEN CASES

	Old Diet								*New Diet*							
	Diet						Blood		Diet						Blood	
	C	F	P	Cal	Insulin (units)	Urine Sugar	Sugar	Cholesterol	C	F	P	Cal	Insulin (units)	Urine Sugar	Sugar	Cholesterol
227/30	125	140	60	2000	10	0	0.153	0.208	236	56	72	1736	5	0	0.192	0.187
6037/29	125	140	60	2000	50	0	0.200	0.272	236	56	72	1736	40	0	0.158	0.151
5158/25	50	150	50	1750	40	0	0.222	0.370	200	56	66	1568	40	0	0.147	0.200
3954/24	50	150	50	1750	20	0	0.111	0.252	218	56	69	1652	10	0	0.122	0.244
5135/21	85	150	50	1890	40	0	0.166	0.287	218	56	69	1652	30	0	0.172	0.225
5053/28	100	140	50	1860	50	0	0.181	0.277	236	56	72	1736	40	0	0.174	0.151
1269/30	125	140	60	2000	30	0	0.129	0.138	236	56	72	1736	10	0	0.117	0.211
241/27	85	150	50	1890	50	0	0.126	0.333	218	56	69	1652	30	0	0.115	0.212
3388/27	50	150	50	1750	35	0	0.166	0.263	236	56	72	1736	40	0	0.153	0.111
2044/26	50	150	50	1750	20	tr.	0.244	0.378	236	56	72	1736	20	0	0.227	0.196

amount of insulin and the increase was five units only; in this case, however, the carbohydrate content of the diet was also increased by 36 grams*; in 3 cases the insulin was decreased. The blood sugar data show that the values were reduced in seven cases. They were increased in 3 cases, but it will be noted, in one of these, the carbohydrate content of the diet was also increased from 236 to 254 grams. In 3 cases the plasma cholesterol increased slightly, and in 5 instances it decreased. All values, however, are normal or lower than normal.

IMPROVED METHOD OF TREATMENT

As recorded in our first report, when the old diets were suddenly changed to the new, there occurred in some cases an early and temporary disturbance of the blood sugar and even glycosuria. This, as stated, fits in with the generally recognized experience that once the dietary habits of the diabetic have been altered, the glycosuria is not so readily controlled by new dietary changes as when diets are given with untreated cases. We have largely overcome this temporary glycosuria by introducing the change of diets on a ladder basis. Thus, our practice now is to give the entire diet with the exception of the bread allowance, on the first day. The diet then consists of approximately 50 grams of carbohydrate, 50 grams of fat and 43 grams of protein. The bread is then introduced and increased at the rate of one slice (1 oz. or the equivalent of 18 grams carbohydrate) per day. As with the older diet of 50 grams of carbohydrate, 150 grams fat and 50 grams protein, it is possible by the ladder diet to estimate the probable course of events of the future with respect to the use of insulin; patients are more properly grouped into those who do, and those who do not, require insulin. As with the older diets, it was found that when the total diet was suddenly introduced, a number of patients could eventually reduce the amounts of insulin required at first, or discontinue its use entirely. To interpret such results as improvement of carbohydrate tolerance is, in my opinion, fallacious. What actually appears to take place is that when the total diet is given when treatment first begins, we are temporarily disturbing the insulin producing function by over-feeding. With time and the effects of mild undernutrition, the little function lost temporarily recovers and with recovery the insulin dosage decreases.

Combining all these data, it appears reasonable to conclude that there is both clinical and laboratory evidence to support the view that diabetics are able to tolerate much more carbohydrate than they were given in the past, without the use of extra amounts of insulin, providing, in addition to the increased amounts of carbohydrate, the principle of undernutrition is applied in the treatment. That this new diet has fundamentally altered the metabolism of the diabetic is suggested from metabolism data. These include plasma cholesterol, urinary nitrogen and respiratory quotient determinations.

From the clinical point of view, the diet is attractive and very simple to follow. With our method of instructions and the use of paper and wood moulds, as previously outlined, the diabetic has no further need of knowledge of carbohydrate, fat, protein and caloric values. The worries, half-knowledge and discouragements with regard to such information, both on the part of the patient and at times the attending physician, are, in my opinion, largely responsible for the persistently high death rates still found in large populations, in spite of so valuable a drug as insulin.

*This case, and the aforementioned experiences, incidentally tend to disturb the prevalent ideas as to the amount of glucose which one unit of insulin can take care of.

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CHILD HEALTH DAY

By the President of The United States of America

A Proclamation

Whereas the Congress by joint resolution has authorized and requested the President of the United States of America to proclaim annually that May Day is Child Health Day; and

Whereas the responsibility for the well-being of children is a community responsibility as well as an individual duty; now

Therefore, I, Herbert Hoover, President of the United States of America, do call upon all Governors of the states of the Union, and all Governors of territories and possessions of the United States to declare to their people that May Day should be used wherever possible as Child Health Day, for the consideration of all public and private measures by which the health of our children may be conserved and advanced. I especially commend for consideration on that day "The Children's Charter" as set forth by the White House Conference on Child Health and Protection.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE, at the City of Washington this seventh day of April, in the year of our Lord nineteen hundred and thirty-one and of the independence of the United States of America the one hundred and fifty-fifth.

(Seal)

HERBERT HOOVER.

By the President:

Henry L. Stimson,
Secretary of State.

NEW ENGLAND MEDICAL COUNCIL

THE meeting was called to order by the President, Dr. Bryant, at 11:10 A. M. at the Harvard Club, Boston, on February 12, 1931.

The report of the Secretary-Treasurer was read by Dr. Bowers.

Dr. Luce, Chairman of the committee appointed to bring in resolutions or a summary of the work done at the last meeting, read the following report:

REPORT OF THE COMMITTEE APPOINTED TO CONSIDER THE MATTERS PRESENTED AND DISCUSSED AT THE MEETING OF THE NEW ENGLAND MEDICAL COUNCIL HELD IN BOSTON, SEPTEMBER 25, 1930

Your committee, appointed to review the paper presented by Dr. Stevens on The Practice of Medicine in Industry and its discussion at the last meeting of the Council, offers the following report: The fact seemed to be well established that so-called industrial medicine has become an accepted form of medical practice. However it is not yet securely founded on generally accepted principles of social ethics or on sound practice in business administration.

While it was agreed that industrial medicine was here to stay and that nothing could stop it, there was a feeling that the medical profession might help to guide it and suggest the most ethical methods of carrying on its functions. It was proposed that this could perhaps be accomplished by a process of education directed at the industrial physicians, the family physicians in the community, the insurance companies and the laity. This plan seemed to offer a somewhat remote possibility of securing greater coöperation among the parties concerned, to their own advantage and the benefit of the patients.

It was brought out that the practice of industrial medicine is very largely preventive rather than curative. Diagnosis and the keeping of good records are the important features, both of fundamental importance in the direction of the diseased worker to proper medical care, no matter where he receives it. The records are also of increasing value in the study of specific industrial diseases.

Some of us heard for the first time that we have here in New England a well-equipped research laboratory under the efficient management of the Harvard School of Public Health. Here we are invited to bring our problems in industrial poisoning, that are often troublesome, and here seems the best hope for their solution. The opportunities offered the industrial physician for early diagnosis, prevention of secondary infections, etc., were well brought out but seem too obvious to dwell upon in this report.

One of the functions of this committee is to offer recommendations. With this in mind we have accepted the suggestion made by Dr. Stevens in the closing discussion of his paper. He said, "I think that the place where this Council can be of most help to industrial medicine will be in working out some sort of a system of practice under which the industrial physician can be more confident in setting the proper bounds to his activities; and confident that within those bounds he can count upon the preservation of his personal relations with his industrial patients."

Therefore this committee recommends that the executive committee of this Council, in some way, cause it to be widely known that it will welcome the submission of such a plan as Dr. Stevens has outlined, from anyone. Also if and when such a plan is submitted, which in the opinion of the committee has merit, that the author be invited to come to some meeting of the Council and discuss his project. Your committee feels that some such action might have constructive possibilities.

THOMAS W. LUCE,
GEORGE E. YOUNG.

Voted: To accept the report and to place the recommendations in the hands of the Executive Committee to carry out the instructions so far as possible.

The President then introduced Herbert Locke, Esquire, of Augusta, Maine, who is the attorney for the Maine Medical Association and has charge of the malpractice work assigned to him by this Association. He is also retained by the Industrial Accident Board of Maine in conducting their legal affairs so the litigation with respect to accidents and liability insurance comes under his purview.

Mr. Locke spoke as follows:

THE MALPRACTICE SUIT: WHY AND WHEREFORE

BY HERBERT E. LOCKE, ESQ.*

THE experience of a dozen years or more in the defense of malpractice suits against physicians in the State of Maine has been interesting and instructive as well. After such experience, a lawyer should be able to offer some worthwhile suggestions to a meeting of doctors. With the hope that I could do so, I accepted with pleasure the invitation to speak at this meeting of the Council.

*Locke—General and Trial Counsel, Maine Medical Association. For record and address of author see "This Week's Issue", page 832.

A satisfactory and prompt result of the undertaking is the outstanding demand of our present impatient and often unsympathetic day and generation. And that demand is not confined to the realm of business. It is made to the professional man—to the lawyer in his endeavors to ascertain and vindicate his client's rights, to the doctor in attempts to diagnose and relieve his patient's condition of illness or injury.

But law is not an exact science. No two cases present exactly the same essential facts and background of circumstance for the application of the recognized rules of law. Applying the rules of law, the counselor reaches one conclusion and follows one course. Applying the same rules to the same facts, the judge or jury often reaches another conclusion and decides that the course followed by the counselor was "wrong", —not the correct application of the rule to the facts. And the result is neither prompt nor satisfactory to the client. *In every case tried, one lawyer or the other made an incorrect, although educated, guess, an incorrect diagnosis.*

Nor is medicine an exact science. "Medical science," says the late Chief Justice Savage of Maine, in Coombs vs. King, 107 Me. 376, "is not yet, and probably never can be, in many respects an exact, certain science. The practitioner cannot be expected to know, or be bound to diagnose correctly that which is unknowable, as many of our hidden ailments may be." Generally speaking, the patient must suffer disability or disturbance to health and happiness from his injury or illness. The "promptness" and "satisfactoriness" of the physician's "result" is measured by his skill or good fortune, many times, in assisting Nature to repair or rehabilitate.

The upshot of it all is this: The patient often measures it all by the result. Sometimes acts accordingly, claims a malpractice and sues the doctor. The law, on the other hand, measures the patient's claim, not alone by the result, but by the honesty and reasonableness of the treatment.

The proposition I seek to make plain is clearly stated by Mr. Justice Philbrook speaking for the Supreme Court of Maine in Merrill vs. Odiorne, 113 Me. 425: "He (the doctor) is not responsible for want of success in his treatment, unless it is proved to result from want of ordinary care, or ordinary skill and judgment. He is not a warrantor of a cure, unless he makes a special contract to that effect. . . . If he exercises his best skill and judgment, with care and careful observation of the case, *he is not responsible for an honest mistake* of the nature of the disease, or as to the best mode of treatment, *when there is reasonable ground for doubt or uncertainty.*" And this states the law in every New England State.

And so we have malpractice suits—brought because the patient is dissatisfied with the result; —and sometimes successfully defended because the doctor is not at fault under the rule I have just stated, because the unsatisfactory result is due to the perversity of Mother Nature, not to negligence of the doctor, because—as in several cases I have tried recently—the result was excellent but the patient psychic and a malingerer.

The experience of the past ten years in Maine may be summarized: many more suits brought; many less maintained. In fact, there has been but one case in my experience during that time in which a jury verdict for damages has been rendered and sustained. And that case we won. Liability was admitted. The jury's verdict was less than we offered. In most cases, a verdict has been directed by the presiding justice, i.e., the case "kicked out of court". In a few, the case has "gone to the jury" which rendered a verdict for the defendant doctor. And in a few more, the jury has rendered a verdict against the doctor but the Law Court has set the verdict aside.

The case just mentioned as the one where verdict was maintained was not a defeat for the doctor. A non-absorbable stitch was left in. We admitted liability and offered $500. This was refused. Plaintiff wanted $4000 to $5000. We admitted in court that she should be awarded something. She got one hundred dollars odd. That is, her lawyer who had spent time and money did. She got nothing.

But I do not mean that there are not cases settled without going to court,—settled by our implied admission of liability and payment of money. There are. But not many. We advise: prompt settlement when we believe we are at fault or that a court will consider that we are; no settlement when we believe we are right and that the Court will agree with us.

This I would emphasize: "Compromise" of cases where the doctor clearly is not at fault to avoid notoriety spells many more similarly groundless suits against that doctor and his fellows. The answer is obvious: don't do it.

But why are more suits brought? Because doctors are becoming less attentive and sympathetic—claimed one plaintiff's lawyer to me recently. It is not so. Such is not my experience. The reason, as I see it, I've already indicated: the patient's demand for prompt and satisfactory result outweighs the sense of regard for and loyalty to the doctor who has done his best for him. Not long ago a patient sued a Maine doctor who had saved his life but caused the patient unavoidable inconvenience and expense in doing so. The doctor was not at fault. The court so held. But no sense of gratitude reposed in the mind of that plaintiff sufficient to deter him from trying to recover money from the man who had taken charge in an emergency and by heroic measures, restored the breath of life to him. That someone should pay for the illness or injury, *regardless of fault,* seems to be the impelling idea—if not the owner of the other automobile then some insurance company, if not

the employer by means of Workmen's Compensation or Employers' Liability Insurance, then the City or State. If none of these, then try the doctor who brought about the recovery. Perhaps I overstate it. Perhaps I am unfair. But there is certainly evidence—abundant evidence in my experience—that the reason for more suits is found in the attitude I have mentioned.

And why are fewer suits maintained, less recovery of money from doctors? For the same reasons. With reasonable preparation, most of the cases have been proved in court to be groundless.

A few general observations on the law and practice in malpractice suits occur to me.

The physician's liability is for negligence only. He does not insure a good result. To be liable he must have either (1) failed to possess that ordinary skill and knowledge we have mentioned, or (2) having it, negligently failed to use it.

What is the standard of knowledge and skill? That obtaining in the community where the doctor practices. The big city surgeon who has met tetanus repeatedly should recognize its symptoms and the likelihood of its occurrence; the small town practitioner who has not encountered it in his practice is not held to that standard.

The usual negligence suit involves ordinary human conduct—acts common to us all. But the doctor acts in a special, highly technical field. So do we need testimony from medical experts to determine whether his treatment was proper or improper? Must a plaintiff put on the stand a doctor to testify that the course of treatment was incorrect? Not necessarily. If the technical propriety *alone* is the issue, if the sole question is whether the treatment given was within the realm of good practice—yes, generally speaking. The plaintiff should show the court that the treatment complained of was in medical science improper.

But if the case is res ipsa loquitur—if the thing speaks for itself, if without explanation, we cannot see how the result complained of could happen except by negligence—no, no expert evidence is required on the plaintiff's side. If after appendectomy, followed by persistent pain and disturbance, the abdomen is opened, and several sponges are found to have been left by the surgeon, the plaintiff does not need to put on the stand any doctor or other expert to establish that, so far, somebody, presumably the surgeon was negligent.

And if, further, it appears from the defense that the nurse entrusted with sponge count, did not keep it accurately, we know it was not the doctor's but the nurse's fault and he is not liable.

Is the doctor's duty and liability to be tested and determined by what another doctor would do in the same circumstance. No. Various courses of treatment may be recognized or indicated. Is the course followed by the doctor a reasonable one—is it within the realm of good practice. Whether it is the *best* practice is immaterial. It is likewise immaterial that another doctor personally prefers and uses another course of treatment.

Can a patient recover for an incorrect diagnosis, or a failure to diagnose, if he suffered no harm thereby? No. There must be damage. The failure to diagnose a "broken hip" so-called gives no cause of action against the doctor for failure to apply fixation, if it appears that even with knowledge of the fracture, it was indicated to let it alone,—not to apply fixation, not to attempt operative interference.

There can be but one recovery for a condition of injury. A plaintiff who sues and recovers for an automobile injury, for instance, cannot then recover from the doctor on the ground that his treatment of the injury was negligent—unless, of course, the plaintiff specifically singles out the claim against the doctor and disclaims it in recovering for his original injury. Otherwise, having recovered for the entire injury once, he cannot recover for a part of it again.

If a patient presenting a difficult case is a "troublemaker", is there any advantage in taking a release from him *before* operation or other treatment—a statement that he will make no claim against the doctor? No,—practically speaking. In the first place, it is of positively no legal effect. It is void on grounds of public policy. Further, it is some evidence that the doctor doesn't intend to be careful—or may be so considered.

But if that same patient declines the treatment you advise, and you believe he will get a bad result, if, for instance, you have persistent failure of union and the patient refuses to permit end freshening, is it advisable to get his signed statement that he refused the advised treatment, and preserve that statement—say, in the hospital record? Yes. Decidedly, as I found to my satisfaction in a recent case in Maine.

Now, a few suggestions:

Please don't criticize—particularly to the patient—the treatment given by some other doctor before the patient came to you. You see the result—nothing more. You do not know the whole story. You do not know what the original condition was, what the other man encountered for difficulties, or whether he had proper coöperation from the patient. Wait "until the evidence is all in". You may have to change your mind when you get all the facts. You may be wiser. But at least, you will know what you are talking about.

Report to your counsel likely claims. Don't wait until you are sued, necessarily. The defense of a malpractice case is best prepared when the evidence is fresh—obtainable. Advice should

do you no harm; failure to get it may prejudice your case.

But don't act too hastily with the patient. A young doctor gets worried because a patient makes a claim and hastily offers to pay for remedial treatment when in fact he is not at fault as cool investigation shows. He has prejudiced himself. He has done unnecessary harm.

Don't make too favorable statements to help someone else—which may hurt you. Not long ago a reliable doctor who was assisting a dentist with anaesthesia signed a statement prepared by the counsel for the dentist. Then that counsel used the statement to induce the patient to sue the doctor, who was not in fact in any way at fault. Watch out for such sharp practice.

A fluoroscope has its place, no doubt. But in diagnosing fracture and confirming apposition, don't substitute it for an x-ray. The x-ray is evidence. It can be produced. It is concrete. What you saw in fluoroscope was helpful at the time. But it can't be produced to prove you got apposition if later the patient removes his cast without your knowledge or does some other act to lose the apposition.

You naturally want to help the patient who hopes to recover money from an automobile injury, for instance. You may not be amply paid unless and until he does recover. But don't give the counsel or adjuster for the defense too much of your confidence unless you know just where you stand with him. Within a year I defended—successfully but with difficulty—a case of malpractice instigated by the adjuster for an insurance company—started solely to cut down the amount the insurance company would otherwise have to pay for their assured's running over the man. The adjuster couldn't settle with the injured man for the low figure he desired. So the adjuster himself brought a suit for the man. It was obvious that settlement of the automobile claim was being delayed in the hope that a substantial sum would be recovered of the doctor. And the doctor had furnished the adjuster with the information—x-rays, reports, etc., to furnish the data for the suit against him.

More "suggestions" would make this talk a demagogic catalogue of instructions.

Time permits me to say but this more: It is a pleasure to serve members of the medical profession. A great deal is heard nowadays about "Service"—not only in Rotary of which I am a member—but in all businesses and professions. If some of those who orate about it would approach the standard of thoughtful attention which the medical profession requires of all its members, they would have much more reason to talk than they have now.

Discussion

Dr. Franklin G. Balch of Boston in opening the discussion made the following remarks:

I think Mr. Locke is to be congratulated on the community in which he works as somehow I have always looked upon the people of Maine as a common-sense, hard-headed lot who are not easy to fool and are not overpersuaded by sentimentality and things apart from the real merit of the case. I think those in the western part of Massachusetts are much the same but in the big cities it sometimes seems as if other considerations than the merits of a case entered into the verdict.

Mr. Locke speaks of some excellent results, so far as can be seen medically, where the patient was psychic and a malingerer. We certainly see those cases and I believe they constitute a large part of the ones where suit is brought. I don't believe a broken leg ever is as good as it was before it was broken and I have several times asked a patient what they ever broke it for if they did not want to have a symptom.

I do not know how many suits there are at present in Massachusetts, but the ones that are being defended by the Massachusetts Medical Society are certainly not going to encourage bringing suits. I can think of only one where the verdict was against us and that largely because the defendant did not want the lawyers to put in certain evidence which would probably have cleared him.

We are doing one thing in Massachusetts which I think has some influence. When evidence given in a case is brought to our attention as unfair, we have a record made of the court testimony. That is read over first by Dr. O'Brien who hands it on to me with his comments. I then go over it and in certain cases Dr. Greenough has also. If we think the testimony was biased, we take action but in almost every case, the unfair testimony has been given by doctors who were not members of the Massachusetts Medical Society and in consequence, we have no right to summon them before the Committee on Ethics and Discipline. In one or two cases, I have talked with them myself. In many of the cases which we have been told were unfair, there has been nothing out of the way in the evidence.

I think your statement that the plaintiff thinks somebody ought to pay for the illness or injury, regardless of whose fault it was, is the cause of most suits. We have come to feel about insurance against malpractice suits that it is largely like fire or automobile insurance. We pay for it to be rid of trouble and expect to be gotten out of our difficulties by the insurance company entirely at their expense and without inconvenience to ourselves. In this way we have come to demand that many suits be settled so as to avoid going to court. It is this attitude of compromise that leads to much litigation. I feel exactly as you do about compromise. If there is one thing that leads to more suits, it is that. It is easy to see the insurance company's point of view. If they can compro-

mise a suit for two or three hundred dollars, they don't want to fight. They are not in the insurance business for their health. On the other hand, I feel sure from what I have seen that every compromise means a crop of new cases and probably just as many cases as a verdict for the plaintiff would make.

Some years ago there was an insurance company that agreed to spend up to ten thousand dollars, or until it had exhausted all the courts that it was able to get the case into, but never to pay any damages if the case went against it. That is practically the same basis on which the Massachusetts Medical Society defends its members who have no other insurance. It has many merits. Many suits would never be brought if a patient thought the doctor himself was going to have to pay the verdict and many more would never be brought if they thought that even if they won, they would have to get their money out of a physician, who, perhaps, had little or none, instead of a rich insurance company.

I like the last sentence in Mr. Locke's account of the plaintiff who wanted four or five thousand dollars and got one hundred dollars odd. The sentence reads, "That is, her lawyer who had spent time and money did. She got nothing." If we could get that across to people who sue, it would damp a lot of their enthusiasm.

I like Mr. Locke's general observations very much. The physician's liability is, as he says, for negligence only and the physician is liable only if he has not got *ordinary* skill and knowledge or for some reason or other does not use it. I could add nothing that would in any way make clearer the description of what ordinary skill and knowledge is. I think Mr. Locke has expressed it wonderfully.

I think the point that there can be only one recovery for a condition or injury is very much to the point. I came in contact with a case only a short time ago where the plaintiff had been hurt and had recovered under the compensation law. He then tried to sue the doctor for some supposed error in his technique in treating him. Needless to say this suit was not allowed to go on.

When I was in the medical school, now many years ago, Dr. Draper who used to give us a few lectures on medico-legal questions, advised us all very strongly never to get a release from a patient before an operation when we were proposing to do something which had not been tried before or which offered very little hope of a cure. He quoted to us one or two cases in which it had worked distinctly against the physician.

I find so many points in which to agree with Mr. Locke that I don't know that it is fair to single out any one but if there is one point in his paper which I thoroughly approve, it is "Please don't criticize, particularly to the patient, the treatment given by some other doctor before the patient came to you. You see the result, nothing more." If we preach this all the time, I believe we can accomplish more good than we can in almost any other way. Here in Massachusetts I don't think the president ever misses an opportunity in his travels about the State and to the meetings of the various district societies to bring out that a few words of criticism can start a conflagration which no one can stop.

Mr. Frank J. Sulloway, Attorney, of Concord, N. H.: What interests me most in the subject under discussion is the question as to how far cases should be settled and how far settlement increases lawsuits. We will all agree that in all cases where we feel that the doctor is wrong and the court or jury will agree that he is wrong, the case should be settled. In the same way, when we feel the doctor is right and the court or jury will agree that he is right, the case ought to be fought. But, we do find quite a few cases which seem to fall in between those two distinct lines. We have cases where we think the doctor was probably right, but where the court or jury will probably not agree with us. The problem was rather neatly raised in a case with which I was familiar, a case brought up before a Medical Defense Committee. After discussion, vote was taken as to what should be done. The decision was practically unanimous to contest the case, the belief being that the doctor's treatment was proper, but in giving their separate opinions as they voted on the matter practically every doctor said that in spite of the fact that he thought the doctor was in the right he felt that the jury would return a verdict for the plaintiff. Now, the question is: was that a sound decision,—that is, to contest a case in which you think the verdict will be against the doctor? It was interesting to see the effect on the doctor against whom the case was brought, as he was very zealous to fight up to the point where he found he was to defend a case in which he would probably be defeated, and thereafter he preferred to settle.

The question involved is whether the case should be tried or settled on nothing more than the final decision as to whether you are going to win. In other words, should you try cases in which you probably will be defeated? After further consideration of that question, in the case referred to, it came up again and the committee on reconsidering the whole matter made what I believe is a sound decision, namely, the question as to whether a case should be tried or settled should be left to the counsel who is going to try the case. That case was later settled.

My feeling, and the point I want to make is that, in the long run, the advice of the attorney who is going to finally try the case should be taken, because I don't see that any good purpose is served by trying cases you think will probably result in verdicts for the plaintiffs. My stand-

ard for fighting is, whether I can win or probably win. Now, if cases should be tried as a matter of principle, whether you get results or not, that is a question I want you to consider. It was quite interesting to take the testimony of a case I defended once through a long seven-day trial. Having observed the uneasy half hour of my client on cross-examination by reason of the loss of certain records, after it was all over I said: "How do you feel?" (We got a clean verdict by the way.) "If you had to start all over again, what would you like to have us do?" He said: "I have fought for principle long enough. You can settle the next one." That case wasn't fought on a matter of principle only; it was a case where we believed we could win, and did win, but the feeling of the fellow that has to stand up in court and fight is worth considering on the question of whether the case should be fought on principle.

The decision of the question of whether cases should be tried, if they probably can't be won is somewhat influenced by the effect of settlements on the bringing of other cases. That brings me to discuss what the effects of settlements are, as I see them in the cases in New Hampshire. I could never trace any claim or any case I have seen to the settlement of some other case. To my way of thinking, these cases are all started by reason of what has been referred to here as the criticism by some doctor who wasn't connected with the case, or by what I may term, for lack of a better expression, indifference or an indifferent attitude on the part of the doctor himself. If a patient begins to be critical in regard to his case, the doctor often gets up on his dignity as a physician, feels that he is absolutely right, and he doesn't feel like getting into a discussion with his patient, or he gets a critical letter and throws it into his wastebasket. Practically every case I have seen in New Hampshire has started, not because somebody has had a case settled but because of some unfortunate remark of a critical doctor or failure of the doctor as soon as he sees trouble coming to get in touch with his lawyer who will have him write back a nice soft-sounding letter to the patient. I believe most malpractice cases are brought because the man has been encouraged by a critical remark of some other doctor or because he has become irritated because of the attitude of the doctor who has done his best for him.

My experience has been that the settlement of a doubtful case,—and there haven't been a lot of settlements in New Hampshire,—does not cause more malpractice suits to be brought. I have never seen a case brought by a lawyer a second time after a settlement. In other words, I don't think the settlement of a bad case has really done any harm. I certainly believe an adverse verdict against a doctor does give a lot more trouble than the settlement of some doubtful cases. My opinion is that if the lawyer believes the case cannot be won there isn't much use in standing up as a matter of principle and setting the case down to be tried.

That leads me back to the point I want to emphasize, that the fighting or settling malpractice suits is not nearly as important a factor in the avoidance of such suits as the conduct of the doctors themselves with respect to the care in the remarks made by doctors who later see a case and by doctors pocketing their pride, so to speak, and explaining carefully to the patient if a result is bad why it is bad, instead of keeping still because they may want to make their case a little better than it is. I believe the doctor in nearly every case can handle his patient and remove all cause for cases if he will do that and not insist that he is necessarily right.

Perhaps I may refer to one other point in Mr. Locke's paper that may interest you. He has spoken about things that you should not do. I am going to take just a minute to discuss the nature of the claims I see and what you should guard against. The case I have referred to, which was a long trial, was a case of a delayed union. The man appeared about three months after the last treatment with absolutely no union, and the defense in that case definitely turned on that fact, but that doctor was wise enough to take, the day he discharged the patient, an x-ray which did prove that there was union there on that day. He had a good "hunch" when he took that x-ray, but he had had a lot of trouble for six or eight months getting that union. The point I want to make is,—don't economize on x-rays, and if you have a bad fracture have an x-ray when you discharge the patient. In other words, protect yourself by an x-ray. Practically all the cases we have had in New Hampshire in the twenty years that I have practised there,—and we have only tried four or five,—have been fracture cases and the difficulty to get by has been the lack of x-rays. We have had some bad moments. In one case there was a loss of an x-ray, but we did have the final x-ray in the case which showed that the leg was in proper condition when the fellow was discharged, which saved us. There was a side issue in that case which illustrates another claim that may be made,—when you discharge a patient, or at least send him away, and tell him to come back if he has any trouble, how far should you follow up the patient if he doesn't come back? In other words, what duty has the doctor under these circumstances if something happens later on? It is a pretty good idea to follow up a case, but from the standpoint of winning such a case before a jury when you don't, I am never very much afraid, but I do like to have the follow-up if possible, because we find in this sort of case that the patient comes in and says the doctor never told him to come back and that he was discharged as

O. K. Then you get a question of fact, as to who is telling the truth, and you never like to have that kind of an issue of fact in a jury case because the jury is apt to be sympathetic with the plaintiff.

Reference has been made to the settlement of cases for hot water bottle burns. The doctor is in no way actually to blame for something done by a nurse, but there is a question as to whether the doctor in charge of an operation is not liable as a matter of law for the negligence of the nurse he employs. That is a difficulty you get into in that sort of a case and if the judge has to tell the jury that the doctor is liable as a matter of law, that ends the defense, so to speak; so these cases have to be settled sometimes simply because of the law. In closing, I wish to point out that the final decision as to whether a case should be settled should be given to the man you trust to handle your case, and I do want to add my testimony that the most important factor in the avoidance of suits, by doctors which concerns us all, is that the causes of these cases are mainly criticism or something in the personal relations between the doctor and patient, rather than because we settle a case here and there as we go along.

DR. BRYANT: We have heard from the attorneys and also one member of the Committee of the Massachusetts Medical Society on malpractice. Mr. Crosbie, who represents one of the insurance companies, will now speak about the subject from the viewpoint of the insurer.

MR. GEORGE H. CROSBIE, Boston: I don't know that I can add to what has been said, except that I am thoroughly in accord with the wonderful work that Dr. Bryant and Mr. Locke have done in Maine. I have followed it for a good many years and certainly feel that they should be congratulated for the results secured in Maine. The State of Oregon has done more or less in the same way. I remember a good many years ago all the insurance companies except one left the State of Oregon and the rates were raised to one hundred and fifty dollars for every doctor. Then the doctors got together and found out what the trouble was, and I think the insurance companies are now charging only about $20 apiece. That was accomplished simply by the wonderful coöperation of the society with the insurance companies, and I believe that the same thing can be done here. In Massachusetts, we have a different situation, I believe, than that in Maine and Oregon. We have a different class of people to deal with, and I doubt very much if it can ever be worked out as satisfactorily as in some of the other states with a larger proportion of people in mill industries.

I am heartily in accord with what Mr. Sulloway has said in regard to compromising certain cases. I have always said, so far as I can find out in the investigations that I have followed, that it has been impossible for me to prove that a suit was instituted directly as a result of the settlement of some other case.

Mr. Sulloway mentioned the fact that the majority of the cases are due to the criticism of another doctor. That is perfectly true, but you will also find that a great many cases are the result of the criticism of nurses and technicians in hospitals. In the various talks which I have given at the medical societies I have told them that every doctor should do what he believes is right but keep his thoughts to himself, and instruct the nurses and technicians in the hospitals to say nothing about the treatment of cases; and avoid criticizing another doctor's work. You have no idea what the first doctor's problem was or the difficulties under which he had to work. I could cite many cases where the first doctor did everything possible to get a perfect result, and lots of times they get, as Dr. Balch has said, a good functional result but not an anatomical one, and who would not rather have a functional result than an anatomical? Sometimes it is not possible to get both. I remember a case of a fractured arm. The patient got a perfect use of the arm but anatomically it was not perfect. Then later he hurt his wrist and the next doctor said; you have had a fracture before? And he said, yes; and the doctor said, what was the doctor doing? That was the cause of a suit which dragged on seven or eight days, but was won by the defendant. Dr. Balch extemporaneously cited hot water bottle burns. Defendants have won a number of cases based on hot water bottle burns; I think none have ever been lost and I don't remember having ever settled one.

One case was tried in Fitchburg several years ago which occupied twenty-seven court days, lasting over a month in actual days. The doctor was a nervous wreck when he got through. Doctors hate the notoriety and hate to lose the time required in attendance at court. In a certain case the doctor wanted us to settle but the company would not agree to do so because of the principle involved. The doctor testified in court, and made one of the best witnesses after he got over his nervousness. The case was won for the defendant. One of the most troublesome things is to get the doctors to coöperate. Many times we will write to the doctor and ask for an appointment for our adjuster to go over the case and he won't answer the letter. This has been done dozens of times; the doctor won't even acknowledge the receipt of the letter. A second letter is written and he may write back that he is too busy to see the adjuster. Then the adjuster will finally go up to his office to see him and there will be an office full of patients and the doctor still declines to see him even when the doctor is the one being sued. If the doctors do not coöperate fully, how are the insurance companies going to get anywhere with

these cases? When it comes to going to court to testify for a fellow member of the society, they are so busy that they won't go unless they are actually summoned. That kind of coöperation is never going to get us anywhere. You must have such coöperation as they have in the State of Maine. Every time I go there I make it a point to get in touch with the doctors that I meet. I have never seen as good fellowship in any state, as there is in Maine. Colorado has it to some degree, but not like that in Maine. Dr. Bryant should be congratulated for what he has done in bringing the doctors together in Maine. We spoke of the hot water bottle burns. We tried one case recently in one of the out-of-town courts. A nurse in a private home put a hot water bottle in the bed. The nurse could not be located. Finally we found her in Providence and she promised to come in and testify, but she didn't, and we had to get a warrant to go down there and get her deposition. If you can get the nurses who can testify in a better coöperating frame of mind, we would get along much better. Get them to avoid criticism. Instruction should be given to the nurses, technicians, students and internes who are trying to be popular with their patients, to avoid criticism of doctors.

I would like to have the suggestion of Henry V. Cunningham considered. He thought that the malpractice committee should be called the committee on medical jurisprudence. The public should know that the Medical Societies are not working against them. It would be of value if the testimony of physicians for the plaintiff could be submitted to the state boards in charge of medical registration in certain cases and also when there seems to be collusion with attorneys that the evidence be referred to the bar association.

DR. BRYANT: I was secretary of the Maine Medical Association for several years and a member of the committee on medical liability insurance, and being the mouthpiece for the committee, Mr. Crosbie has attributed all the good things that were accomplished to me. I am sorry that Dr. Abbott who was chairman is not here to speak in his own behalf and for the State of Maine.

We have heard from the speakers of the claims for x-ray burns which are coming more and more into prominence. We are fortunate to have with us Dr. Chesley of Dover, N. H., an x-ray expert, who has something of interest to tell us.

DR. H. O. CHESLEY: I have been very much interested in the discussion *especially* with reference to the part played by the x-ray and I would make a few observations first on the value of an x-ray plate before a jury.

I have made the statement to attorneys, that juries were unable to intelligently interpret x-ray plates and should not be presented for their evaluation. Their reply is that in a measure that is true but until we can get something to take its place attorneys must insist on showing x-ray plates to the jury.

Mr. Locke speaks of some doctor picking up a plate, with a disparaging remark of "who did that", evidently trying to indicate a bad result, now I think we should remember when dealing with broken bones that the apparent deformity can be the result of distortion due to faulty technique. This is a frequent occurrence when dealing with shadows cast by an object not in contact with the plate, and that they are not always so bad as they appear.

Another observation I would make that the best anatomical result is not always followed by the best functional result and that it is not always desirable to get the best anatomical results at the expense of the best functional results.

It has been brought out in the discussion that you should have follow-up plates in your fracture cases, and I would emphasize the necessity of completion of your record, by having all fracture cases x-rayed on discharge. This may save you future annoyance and expense.

The laity is demanding one hundred per cent. of us today in our end results and we must insist on whatever may be necessary in our fracture cases to more nearly approximate what is expected of us.

The meeting adjourned for luncheon.

At about 2 P. M. the President called the meeting to order and suggested that it might be desirable for the New England Medical Council to become affiliated with the New England Council. He said he had conferred with Mr. Dudley Harmon, Vice-President and Executive Secretary of that organization, and had invited him to address the meeting.

MR. DUDLEY HARMON, Boston: *Mr. President*, I thank you for your gracious words. I have had a very pleasant lunch in delightful company. For me doctors have always had a certain fascination, and when one can spend time in their company without its costing anything it is a real pleasure.

Perhaps some of you will be interested if I say just a word about the New England Council. It is a body of seventy-two business men organized five years ago at the suggestion of the New England Governors and created for the consideration of matters affecting the economic progress and development of these New England States. In passing, I think it is proper to say that the medical profession has much the same interest in the economic growth and development of New England as those directly engaged in business, because this territory has a market, so to speak, for your profession,

though we do not ordinarily think of your profession in commercial terms. All of you have an interest in the economic as well as the physical health and growth of the New England community in order that it may be a desirable place for the practice of your profession.

It so happens that last year we were glad to respond to the suggestion that we lend our good offices in promoting coöperation of the states with the Harvard Commission on Infantile Paralysis which, as you know, has coöperative relations with the public health authorities of Vermont and Massachusetts. To consider this matter we called together the Public Health Commissioners of these six states and the executive of the Harvard Commission. This conference made possible a better understanding of the work of the Harvard Commission and the coöperation it is prepared to establish with the other four states. It is our belief that anything that makes for greater coöperation between like agencies in the several New England States makes for greater efficiency of operation and is good for New England.

Following this conference it was suggested that the Council go further and create a permanent committee on public health. Such a committee is now being formed. The membership of the committee will include the Health Commissioners of the New England States, and it has authority to add others, either laymen or professional men, to its membership. Our former President, Honorable Redfield Proctor, former Governor of Vermont, has consented to take the chairmanship of this committee. Those of you who are from Vermont are familiar with Mr. Proctor's interest in public health matters.

Your President has been good enough to suggest that there should be an organized contact between the New England Council and your New England Medical Council. For our part we would be very happy to have you consider his suggestion.

The Council has always recognized the importance of public health matters in the economic life of New England. For example, we in New England are now inviting people from other sections to spend their summers here. When a little upset occurred in western Massachusetts a year or two ago that became immediately a matter of economic importance, in that fear of contagion kept away from that district many who otherwise would have visited it that summer. We realize that if New England hopes to entertain visitors every summer it must make certain that proper conditions of public health obtain throughout its area. We recognize also that climate is a decided factor in our economic life, and we like to believe the figures sometimes quoted which tend to show that the average life span in New England is a little longer than that for the United States as a whole.

We shall be pleased to receive from you suggestions as to possible fields of coöperation between your New England Medical Council and the New England Council which I have the honor to represent. I hope Dr. Bryant will continue his thought along this line, and we shall be interested in learning of any conclusions reached. I shall advise Governor Proctor, as Chairman of our Public Health Committee, of my attendance at this meeting and what your President has said.

The New England Council meets quarterly throughout the year, rotating its meetings among the different states. In Boston each November we convene the annual New England Conference with an attendance of from 900 to 1000 business men. This Conference lasts for two days, and part of the time it is broken up into sections for discussion of particular problems in various fields. Last November we created a new section at the suggestion of our New England bankers, and conducted for them a Conference on Bank Management. Possibly it is not unreasonable to suggest that some day you may wish us to set up a section of that Conference for the medical profession. However, that is looking quite far ahead. But I do want to leave with you the thought that the Council is entirely open-minded, and that our whole aim is to bring together those agencies of New England that have common interests and desire to work together and with us to increase New England's contribution to our national welfare.

DR. ROBERT B. GREENOUGH, Boston: I would like, as the others who have spoken have done, to pay tribute to Mr. Locke for the general informative nature of his remarks and the value of his suggestions. I have had impressed on me the fact that one of the most important ways in which malpractice suits are started is by thoughtless, rather than malicious, criticism of the work of the physician who has been on the case before or at the time that the second doctor takes charge of it. I have, myself, heard physicians in hospital service make what seemed to me at the moment very injudicious remarks before a patient, and once or twice I have felt called upon to protest at such remarks. Very slight suggestion on the part of the physician may be magnified by the patient, in his discontent and disappointment over a prolonged or unsatisfactory result, into a far more serious criticism than the doctor originally intended. Physicians throughout the country should appreciate what great misfortune may result from making a very casual criticism of some other physician's work.

On the other hand, I deplore the attitude which some of us, at least, are inclined to adopt in maintaining that whatever another doctor does is right and all other doctors must support it. As I see it, a man practising medicine has a definite duty not only to his patient but also to the community, as a whole. If a physician of his own knowledge and experience knows that treat-

ment given by another physician on a case is distinctly harmful, or was distinctly harmful, I believe his duty to the community is to protect it from inefficiency. On that basis a physician who has personal knowledge of such facts and is called to court must conduct himself as any other individual should and tell the truth as well as he is able. When it eames to the question of a physician going to court as an expert in a malpractice case against a defendant physician it is quite another matter. I think that he may properly decline to give such testimony on an expert basis. There, it is not that he has facts, but that his opinion is sought, and he may well feel that lacking personal knowledge of the facts, his opinion in regard to the case can be of little value. When it comes to facts of which the physician has actual knowledge, however, I believe that he should fulfill his duty to the community by making that knowledge available to the court.

At this point the meeting was thrown open to general discussion, Dr. Bryant suggesting that the members speak briefly because of the necessity of adjournment in time for those who were obliged to take trains.

DR. LUCE, Portsmouth, New Hampshire: Mr. Harmon has just remarked that it was a pleasure to be associated with doctors when it didn't cost anything. With this as a cue I am taking a chance to ask these lawyers a question or two and am assuming that I will not get a bill in my mail for any opinion they may offer.

It has been emphasized all through these discussions that the loose talk of doctors, nurses and internes is probably the most prolific source of malpractice suits. Some of us thought when we were getting up our present plan of handling our medical defense problem in New Hampshire that the most valuable point we established was the keeping of the records of the investigations of these proposed suits as a part of the permanent records of our State Medical Society. It seemed to us that this plan might be an effective curb on some of this loose talk, when it became generally known that it would be permanently recorded and passed down to posterity. However our legal counselors object to this part of our plan, on the ground that it is inexpedient and dangerous because these records may be brought in to court by an order asked for by the plaintiff's side and be harmful to the defendant's case. I can see that this contention is sound but I feel equally sure that a permanent record would cut down the volume of loose talk and if this is the real cause of the vast majority of the suits, why wouldn't it be better to take a chance on being handicapped in a few trials if by so doing the total of the potential suits could be reduced to any marked degree.

DR. GEORGE BLUMER, New Haven, Conn.: We have had this question of malpractice suits pretty thoroughly ventilated in New Haven, more than in the State of Connecticut as a whole, because we have had the misfortune in the last year or two to have had a very large number of malpractice suits in the City of New Haven. In fact, the matter reached such a pitch that the New Haven City Medical Association appointed a committee to investigate the matter and they discovered the same facts that have been brought up this afternoon and that Mr. Locke and the other speakers have noted, namely, that nearly all these suits originate from careless remarks made by other doctors. I agree with Dr. Greenough that they are usually careless and not venomous remarks, though there were occasions when we thought there was malice. I am sorry that Dr. Frank Wheeler, chairman of that committee, and a member of this body, is not present today because he could talk about this matter more effectively than I, although I have been on the Committee from the beginning.

What we have done is this: We have requested every member of the Society whenever a suit is even threatened (not merely when it has actually occurred) to bring it to the attention of the Committee immediately. We then hold hearings. We have had five or six. We have a competent stenographer who keeps minutes of all these hearings, and what we have done is to call in the doctor against whom the suit was brought and if possible representatives of the other side. It is a rule of the Association that if any man is known to have agreed to act as an expert on the other side that he also shall appear before the Committee and justify his position. The Committee has not been in operation long enough to know just what the result is going to be, but we certainly have a feeling already that it has accomplished one thing, and that is it has called the attention very strongly of all the members to the dangers of talking slurringly about cases that pass through the hands of other physicians. We have realized that the stenographic notes of these proceedings could be called into court. We have not been very sure about what would happen, but we feel that on the whole it is worth while to take that risk.

DR. PHILIP DAVIS, Portland, Maine: Several nice things have been said today about Maine and the men from Maine, but I know, Mr. Chairman, that you will agree with me that we won't go away from here too much puffed up with pride. Things are not altogether perfect, even in Maine. We have been fortunate, as has been pointed out by Mr. Locke, in getting results and have had good fortune in the efforts of our defense committee in the management of these cases. There is some advantage perhaps in the State of Maine's comparative isolation. What is good for Maine of course we know need not necessarily be good for every other State in New England, but in this matter of handling mal-

practice suits we are somewhat fortunately situated and we have taken advantage of it. I am sure even with us certain minor adjustments from time to time will have to be made. I want to add a word of my appreciation of the interest and responsibility that each one of us has in the prevention of the instigation of malpractice suits. I remember very well when entering upon my first interneship, which happened to be in Cleveland, Ohio, that my first chief, Dr. Dudley Allen, got the internes together and talked to us, and one of the very first matters he touched upon was to caution us strongly not to criticise the work of other physicians. He told us that we were dealing with patients and doctors from all over Ohio, and although I do not remember now that the word "malpractice" was mentioned in his talk, it amounted to this: that we should do as we would be done by, that none of us could afford to throw a stone; and for the reputation of the hospital and ourselves we should never suggest to the patient any criticism of the results that came before us. I think that in these days when so much emphasis is laid on diagnosis and treatment, the young man who is entering medicine is suffering from the failure to emphasize and teach a little more of the art of medicine.

Dr. David W. Parker, Manchester, N. H.: There is a question I would like to ask on account of several observations that have come from members of the profession in New Hampshire who were not possibly very close to the medical defense committee, questioning the value of that committee. To those of us who are familiar with the workings of such a committee as that brought to us by Dr. Bryant there is no question about its value, but I would like to have Mr. Locke give us in the discussion his ideas as to the defense committee in Maine, just what functions of that committee are particularly of value to him as an attorney in combating these malpractice suits, and also just how far he believes the committee as a whole, or members of that committee, should go in these matters. I would also like to ask Mr. Sulloway of New Hampshire what his ideas are as to the value of our medical defense committee in New Hampshire and what ideas he may have, if any, as to how that committee, as a committee in New Hampshire and an example to committees elsewhere if so formed, can add anything of value to the attorney in the preparation of a case. There was an observation of Mr. Crosbie that struck me as of possible value. It was significant anyway. As to the designation or nomenclature of that committee of medical defense; I realize, and have had it called to my attention, that the name "Committee of Medical Defense" implies an antagonism to the public and an alliance, in a defensive way, to the profession as a whole, regardless of the moral aspect. I wonder if it might not be worthy of discussion to consider changing our name to jurisprudence, or whatever name might not imply that antagonism to the public.

Dr. C. B. Sylvester, Portland, Maine: Dr. Luce made a comment that interested me for this reason: he said, in court everybody knew we were insured and what was the use of keeping still about it. The distinguished gentleman from the New England Council asked me the subject of discussion here and in referring to the matter of insurance, he said, "Do you mean to say that Doctors are insured against malpractice suits?" I said: "Yes." He replied, "That is a new one to me." It was refreshing to me to observe that there were men who were not aware that doctors were so insured.

Something was said this forenoon that interested me, gave a little personal touch to this matter. It was said that in starting suit men thought they had been damaged and that *somebody* must pay; these are days of insurance; losses must be paid, losses in business, losses in profits; therefore when a man is sick or injured somebody must pay. One of the business men in my State, whom some of you would know if I should name him, had an accident: His statement is in proof of what a conscientious man who was injured by a hot water bottle burn thought on the subject. This was a case of cardiac asthma where the man in going upstairs hurriedly, fell cyanosed and his wife thought he was dead. In her alarm she placed an over-hot water bottle at his feet. The doctor who was called in attendance took the bottle away and scolded her, in the presence of the family, for putting it there. The man was very sick for six months, kept away from business because of very serious burns. After that in talking with me confidentially, he said: "I have been thinking this over. I have been away from business and I have paid out a number of thousand dollars and it is the fashion nowadays to collect damages. Other men are doing it and I ought to be as bright as they are, and I have been figuring how I can collect damages. I certainly can't collect from my doctor, and I can't find anybody but my wife to charge it up to, and I have told her that I have got to get square some way and she is the only one I can collect from. Now what am I going to do?" I am citing this as an illustration of some of the points I have noted in these matters.

Dr. Edwin A. Hyatt, St. Albans, Vt.: I didn't get here in time to hear the paper. We have been quite successful in lessening our malpractice suits; whether due to the work of the physicians or of this committee, or whether it is just the conditions of the times, I can't say. We have always pursued the policy of defending our men unless they were positively at fault and it could be shown to us that they were blameworthy. If there was any reasonable ground

for defending them, we have defended them to the last ditch. I think there is a much better feeling in Vermont among our men, and it has come about through this committee. We must constantly, I believe, educate our men to two or three things. One is to do away with this loose talk we have discussed. Another that has not been mentioned is no talk at all. I have several times seen physicians say nothing, which meant a great deal at a time when they should have talked and talked positively. A patient has made a suggestion and they kept very still, knowing the effect of that significant silence. Then I think we must constantly educate our men to notify their committees at once when they are threatened with suit. I find quite a negligence on the part of men who are threatened with suit to notify us; they seem ashamed to tell us. I think they should not be ashamed; they should be encouraged and educated to get the information to the committee at the earliest possible moment. Then too I think we should have communications to the members of the Societies showing the pitfalls that exist and trying to bring to their attention the possibilities of cases and how to avoid them.

DR. BLUMER: I would like to ask Mr. Locke if there isn't some way that the Bar Association could control the matter of these so-called nuisance cases.

DR. HERBERT E. LOCKE, Augusta, Maine: I would like to comment briefly on some of the things the gentlemen have said and to add a little.

Dr. Balch spoke of the Massachusetts Medical Defense Committee. I don't understand it fully, but if I get the high spots, wholly outside of the insurance, the Massachusetts Medical Society will undertake the defense at its expense of members, but will not pay damages. I don't know how that works in Massachusetts. I hope it works well. I am afraid of it for Maine, because, if a doctor is called in defense, he may be properly asked under the rules of evidence in our state a question to bring out the fact that he is in a legal sense at least financially interested in that result. It may not be very material, but it is material enough so that it would be admissible and would to some extent affect the credibility of that witness. We do not do that in Maine, for the reason I have tried to point out—our fear, my fear at least, that it can be used to attack the credibility of the witness. The Doctor tells me that it has never caused him apprehension here. In several cases in Maine it has been attempted to show a conspiracy of the doctors to protect each other. Where that has occurred I have been able to meet it and show that it was not true, but there is an increasing tendency to do so in my State, and the Massachusetts system as I understand it would seem to me highly dangerous on that account.

Mr. Sulloway spoke of several things that interested me; first, that the Maine court he believes has more and more tended not to let the jury run wild as seems to have been shown in the courts of some other States. I think that is true to some extent, but that is wholly a matter of the personnel of the particular men who were on the highest court at the time. It is a principle of law that while the jury decides the facts, no jury shall be permitted to reach a decision which twelve honest men reasonably could not reach. That is good law in every state.

Sometimes our judges let cases go to the jury which should not, in my opinion. Bear in mind that all the legal wisdom is not resident in the State of Maine. The Maine court does interfere with incorrect verdicts, but not too much.

The point of allowing the lawyer to run the defense instead of the defense council has been mentioned. Yes; that is what we do in Maine. They let me run the case. I hope I use good judgment and am not exceeding the authority the circumstances impose on me. In Maine we realize that the doctor gives valuable advice and is of very great assistance, but the doctors are not lawyers and they cannot size up the connection between law and fact as the lawyers can. They don't positively say to us you can or you can't, but we coöperate; they don't control me completely in the settlement of the cases. I don't mean to say that our defense council doesn't serve a purpose, but it is the rule in Maine in the last analysis to let the lawyer run the case subject always to the advice of the defense council, and our cases cannot be settled without the consent of the doctor who is involved. Our association still insists on that. That is to guard against the insurance company—in those cases where there is insurance—being able to settle because it is better for its pocketbook. I mean that the doctors have the say in the last analysis because it is their reputation that is involved even though it isn't always their pocketbook.

One of the most disturbing things as Mr. Sulloway says is this question of fact to the jury. I don't take it that we find it so very difficult to decide on a given set of facts whether a doctor is guilty of negligence or malpractice. But this question of fact! Let me illustrate: In a case a couple of months ago I was defending one of the most conscientious surgeons in the State of Maine. Everybody knows him to be such. The positive testimony of three supposedly disinterested witnesses was given to the effect that in removing a toe from this man, who had been afflicted with senile gangrene for some years—he had already had one toe removed—and he would not let them amputate up above, as they wished

and advised,—the doctor in removing the toe tied a suture around the adjoining toe, thereby causing an infection to spread up the leg, so that several months afterward that had to be amputated. The man had senile gangrene and the leg should have been amputated a year or two before. There was a positive claim of fact. That had to be decided by the jury. In that particular case I got a directed verdict because I established to the satisfaction of the presiding judge through the medical testimony that tying the suture around the toe would not of itself and could not cause the gangrene that would spread, and then I happened to catch him on the suture. He said "when they took the stitches out" and I got him there because it was an absorbable suture. There was never any malpractice in the case. Take another case, a very good man, a careful fellow, was sued, and the patient's wife and two minor children testified that in treating a bad fracture (it wasn't really compound, but it was almost out through the skin and the soft tissue was badly bruised) the doctor asked for some cotton and they went and got an old puff from the attic and he took some of the cotton batting from it and wound it around the almost raw wound and that was the cause of the infection. It is those questions of fact that grow gray hairs with us fellows defending these cases. You can have all the medical testimony you want, but if they can figure out a question of fact and have a crazy story like that, they will do it. Consequently I feel that being faced, as I am in almost every case—I won't say all—with what I know are false statements of fact made to establish liability, within reasonable rules of ethics I am justified in going just as far as I can to head the cases off when it is a question of fact that bothers me.

Some remarks have been made about the liability of a doctor for actions of a nurse. We understand the doctor is not responsible unless the nurse is an employee of the doctor. He is not liable for her unless he is assumed while there to direct that person's acts. He may place himself in that position and the force of circumstances makes that nurse his employee for whom he is responsible as principal for the time being. I think you can be responsible under particular circumstances.

Mr. Crosbie, whose remarks I have appreciated very much, spoke particularly of this matter of coöperation, and of the fact that he finds this love for the fellow doctor down in Maine more than in any other State. I am glad you find it that way. I am not criticizing the medical profession, but I don't get that love every time. I have tried three cases in the last six months where I most decidedly did not get it, and where I had a member of the Maine Medical Association furnish textbooks, hypothetical questions, and apparently intending to "get" that doctor if he could. That has happened quite a number of times. I want you to understand that it isn't Utopia in Maine. If it were, things would have been a little different than they have been during the last six months. We are not perfect, but we are making progress. The doctors are doing wonderfully well, but they don't always give us the coöperation to which we are entitled. Don't think I am insensible of the splendid coöperation we generally get from our doctors in Maine.

There is one thing perhaps not overemphasized which I still want to insist upon. That is, this effect of stirring up cases by settling cases which there is nothing in at all. I can give you a direct case within the past year in Maine where it is positively clear that a second claim was made against a doctor because of his paying what I call blackmail money to the extent of $100 in a malpractice suit. I don't mean to overemphasize that. I don't claim it is the source of all cases, but it is the source of some. I recall one case and there wasn't anything to it, but the doctor was seriously disturbed and he made a settlement. He paid $100 and it wasn't three months before a similar one was brought up. So long as the plaintiff's lawyers in Maine understand that they are not going to get every malpractice case settled, that they are only going to get a settlement when there is some show of a verdict, they will be more careful about bringing these suits. I wish to remind you that although Mr. Sulloway has not found it so, we have found in three or four cases that the settlement of a case which never should have been settled on any fair view of the case did bring other suits.

Dr. Chesley spoke of x-rays shown to the jury. I realize a jury cannot interpret an x-ray correctly but it is always good to have them and under proper instructions from our court the x-rays are helpful. If the case goes to the upper court the x-rays mean more than to a jury.

One suggestion that was made here appealed strongly to me. It is the matter of explaining to the patient, telling him why the result is not better than it is or at least isn't what the patient hoped it would be. I wish there were more of that. I feel that our old-fashioned practitioners were so much closer to the patients and had so much more loyalty from them than there is today. This is a busy world and we are all going pretty fast, but a little of that loyalty from my experience would have gone far to head off malpractice psychology. I am reminded of two or three cases where I believe that would have prevented a suit.

Dr. Greenough spoke of the dishonest support of the doctors, and I agree heartily that it is not the business of doctors, of Maine or Massachusetts, or any State, to go to the extent of testifying falsely to unsound medical and surgical propositions. All very true; they should not do it. But, on the other hand, along with that principle

please bear in mind that if you are facing these false issues of fact that I have tried to bring to your attention a minute ago, I think I am justified in bringing out those points in my case which the other side cannot attack. I think it is not my duty in the trial of a case to point out the weaknesses which the other fellow can seize upon because, although the office of the court is to ascertain the truth, still there is a certain sort of game in the trial of a case and if you are facing what you believe to be perjured testimony on matters of fact I think you are perfectly justified in not pointing out the defects in your own case. I don't mean that Dr. Greenough is wrong, I don't mean it at all. This matter of dishonest support of a doctor I think would be all wrong. I don't think you would do it in Massachusetts. We don't in Maine. I would think in this matter of duty to the community which Dr. Greenough speaks of the doctors have a responsibility a little bigger than just testifying against a doctor who made a mistake in a particular case. To be sure people could not all be disbarred from law practice for incompetence, nor could all incompetents be thrown out of the practice of medicine, but you can get after them and check them up and be more careful in your association with them.

Dr. Luce spoke of some things along that line. I have run into this increasing tendency on the part of some of the younger men in the profession to show that certain older men don't know any too much and to get the notion that they, the younger men, ought in these malpractice cases to show the public that their elders don't know enough. It seems to me that there is too much of this attitude and it has bothered me quite a lot down in Maine. Some men younger than I feel that they have got to show this man up, but after they have had a little more experience and some poor results, their attitude is going to change.

In this matter of insurance, it has been remarked here: what is the use of suppressing the fact of insurance, everybody knows about it. I think you are wrong when you say that. A lot of lawyers say: keep out insurance? what is the use; everybody is insured. Everybody is not insured in the State of Maine; only sixty or seventy per cent. of the automobiles on the highways are insured; out of eight hundred doctors you haven't got more than six hundred insured in my State. To my mind this matter of insurance is very prejudicial on the face of it to the defense of malpractice suits. I might cite the opinion of Chief Justice Pattangall of Maine with whom I was formerly associated. He feels very strongly indeed that this matter of insurance should not be disclosed because, what is the insurance company's contract? Merely that it will pay money which you as a defendant are found liable to pay. The insurance company isn't the defendant. It simply makes a contract with you that it will pay the money which the jury says you must pay. Consequently it is manifestly unfair to have a jury reach a verdict based upon the fact that the insurance company will pay.

Dr. Blumer spoke of this matter of a "hearing committee". I hope this works well, but I would be scared to death of it in Maine, because its existence can be brought out in the trial of a case and be subject to so much misunderstanding. My feeling is that the activity of a defense committee or of an advisory committee should be conducted with as little paper work, that is, as little that can become public as possible, not that I am afraid of it as such, but because it is capable of so much misinterpretation. The jury likes to believe that somebody put up a job and they are going to ferret it out. I feel very strongly on that.

Dr. Parker of New Hampshire spoke of the value of the committee on defense and I believe he asked what my opinion was of the value of the functions it could properly serve. In Maine I think the committee functions something like this. We have a number of men around the State; they meet once or twice a year, three or four times as a matter of fact. I send to them twice a year memoranda on each case, very sketchy but giving a general notion of the case. I have the benefit of their advice. Up there we don't accomplish all we have in mind but they do a tremendous lot of good. As to the matter of the name of these committees. I would like to see that committee called something different. It might be public relations perhaps, ethics, advisory committee perhaps. Advisory strikes me as a good name. I believe we should get away from this notion of defense and I think that committee should be understood to have such a function that any doctor against whom a claim is made may come in to them and say, "Gentlemen here is the situation." I don't know whether I am guilty of malpractice; I think I'm not, but I would like your advice on it because if you say I am on these facts I am disposed to settle it and get it out of the way, not only for my own good but for the good of the profession at large. But if you say I am not; you think I'm not; you think what I followed for treatment is sound, then I am rather inclined to go ahead and defend the case. In other words, I would have it in the nature of an advisory committee rather than a defense committee to defend regardless of the facts of the case, because I feel sure that if we emphasize the defense function of this committee too much we are going to have it dragged as a red herring across the track of our defense to our disadvantage with the jury.

DR. PARKER: How far do you think a defense committee ought to go? Should they be at the call of the attorney or should they go ahead on

the preparation of the case for the doctors, see witnesses of their own volition or make a report to their committee?

MR. LOCKE: That is difficult for me to answer. As to the State of Maine, when insured they report to the insurance company and they give it to me and we investigate. I would say most decidedly let us preserve all the integrity that we can as an advisory committee. Prepare evidence? No. An advisory committee? Yes. In Massachusetts, the Society is actually defending cases and it is working here so, I would not criticize the system here. But with the situation as it exists in Maine I say, "No."

Dr. Hyatt spoke of accusation by silence, giving an impression that is obvious, and we have all run into that. I have seen the time when I wished the doctor would say, "No, you haven't got a perfect result; it is a good practical result"—instead of unintentionally suggesting a malpractice suit by giving the patient to understand that he might have secured a better result.

Dr. McDonnell spoke of discouraging suits, and I think that doctors ought to do that whenever their consciences will permit. I would go further and say this: when you feel confident that a doctor has committed an error, please bear in mind that it isn't every "error" that means a liability; one of us has got to be wrong. If you follow a certain course of treatment and another doctor says it was wrong, that error doesn't mean liability in law necessarily and you are not liable before man as a matter of fairness; you are working in an inexact science and you are liable to error. If that is true, I think a doctor can well say: "yes, I think the doctor's treatment was all right," even though you feel that you would have done differently when you looked it over afterwards.

Mr. Crosbie spoke again of this matter of compromise, and I have pointed out that in our policy in Maine anyway the doctor's consent is required for compromise. I won a case this fall that I thought ought to be settled and the doctor would not consent. The company was willing to settle for $1500; the lowest figure I could get was $6000. The doctor would not consent to settlement. We tried the case. I am not the doctor's conscience; I am not a physician; if he insists that he is right even though I don't feel so, I do the best I can for him. It is his professional standing that is involved.

This matter of bad work, not getting good results. I have spoken of that. Heavens, gentlemen, we have what some might consider malpractice right in my own profession. Not three days ago a man came to me, to defend his action in selling a widow, an executrix of an estate, $12,000 or $13,000 of unlisted securities which under the laws of Maine are positively barred to trust estates. He told me he had taken the advice of a lawyer in my own town who told him the executrix had a right to invest in such securities, and of course she had no knowledge as a trust officer of the class of securities proper for investment of trust funds. I was interested for the widow and a bank to try to get that money back. I said to a stock salesman "you must have misunderstood the lawyer, and then of course I may be wrong". I backed down all I could consistent with straightening the matter out, but I know that lawyer was as guilty of malpractice as the physician in any medical case I have ever known. I didn't want him to be sued; I said, "All right, give him a break." And so it is more important many times to straighten out a physician and cure the patient, than it is to maintain a malpractice suit.

In these sketchy remarks I have just tried to draw to your attention some of the matters involved in some of the cases that have been handled. I want to close with this suggestion: that in your defense council work I would earnestly urge that you cannot be too careful that you do not get a committee or a body which can be criticized for defending cases that ought not to be defended. Instead of that, I would make it an advisory committee.

Dr. Luce spoke about the ownership of the x-ray and punitive damages. Punitive damages are recoverable in Maine, and I believe in some other States. In the State of Maine punitive damages do not survive death, but generally speaking they are recoverable. Mr. Sulloway says there is no doctrine of punitive damages in New Hampshire. But Maine permits it. I think this is a matter you have to learn about in your particular State.

On the matter of ownership of x-rays, I don't know that I can give a very good answer. There are different views and it has never been adjudicated in my State. I take the position and advise hospitals and doctors to take the position that the x-ray as a means which they have used in their diagnosis belongs to them, where there is any reason to do so. But on the other hand, I feel that on a straight, fair basis that x-ray for which the patient has paid belongs to the patient if the patient has any proper interest, even in suing the doctor who took it, as a matter of fairness. And I believe it would be the decision of our highest court that that patient owned, or at least had the right to possession of that x-ray for his use.

MR. SULLOWAY: I think the medical defense committee in New Hampshire merely works in an advisory capacity and I think it is very useful. It is especially useful in two ways, one where the doctor himself who is sued may not want to defend the case when it ought to be defended. I think the discussions in that sort of case have been a great help. And the same is true in another class of cases, that is, where the

committee feels that the doctor is probably wrong and the doctor doesn't think so. I think Dr. Luce has made a point which I would strongly recommend about records. I think you can do a good deal with records but be careful what sort of a record you make as what I fear in a lawsuit is having any record affecting any doctor brought into court as it may be in testimony against any particular person. I am afraid Mr. Locke got the wrong idea of my position on the settlement of cases. I do not recollect the settlement of any case in which I thought we had suits directly because of that settlement. Nevertheless, I would not settle a nuisance case, that is, a case without merit, simply to save bother. I do feel that it is wise to make settlement of cases that I am certain cannot be won, but not those which we ought to win.

President Bryant stated that it had been considered necessary by the Executive Committee to revise a provision of the by-laws and called upon the Secretary to read the proposed amendment, which is:

Change the words "four of its members, two of whom shall be President and Secretary ex officiis" to read "a representative of each of the six New England States, three of whom shall be President, Vice-President, and Secretary ex officiis" so that the section will read as follows:

> "The officers of this association shall be a President, a Vice-President, a Secretary who shall also be Treasurer and an Executive Committee of six members consisting of one representing each of the New England States, three of whom shall be the President, Vice-President, and Secretary."

Upon motion duly seconded it was

Voted: That the section be amended so that the Executive Committee shall consist of these three officers and a member from each of the unrepresented States.

Upon motion duly seconded it was

Voted: That the matter of affiliation of this Council with the New England Council be referred to the Executive Committee.

The President stated that he had appointed the Executive Committee as a Committee on Nominations and read the report which was as follows:

For President: Dr. George Blumer.

For Vice-President: Dr. W. G. Ricker.

For Secretary-Treasurer: Dr. Walter P. Bowers.

For Executive Committee: Dr. B. L. Bryant, Dr. F. T. Fulton, Dr. D. E. Sullivan.

Upon motion duly seconded it was

Voted: That the nominations be accepted and the Secretary cast a ballot for their election.

Adjourned at 4:05.

NAME OF NARCOTICS DIVISION CHANGED TO DIVISION OF MENTAL HYGIENE

In a recent report, Surgeon General H. S. Cumming of the Public Health Service indicates that the year ended June 30, 1930, has been characterized by additional legislation seeking to coördinate and crystallize the functions of the Narcotics Division, now designated by law as Division of Mental Hygiene.

At the close of the year, the functions of the Division of Mental Hygiene in the office of the Surgeon General included the administration of the two recently authorized United States narcotic farms; studies and investigations of the nature of drug addiction and the best methods of treatment and rehabilitation of persons addicted to the use of habit-forming drugs; the dissemination of information on methods of treatment and research in this particular field; coöperation with State and local jurisdictions with a view to their providing facilities for the care and treatment of narcotic addicts; the supervising and furnishing of medical and psychiatric service in Federal penal and correctional institutions; studies and investigations of the abusive use of narcotic drugs and the quantities of such drugs necessary to supply the normal and emergency medicinal and scientific requirements of the United States; and, lastly, studies and investigations of the causes, prevalence, and means for the prevention and treatment of mental and nervous diseases.

The site for the first United States Narcotic Farm has been selected at Lexington, Kentucky, and plans are under way for the development of the necessary buildings thereon. Medical officers have been assigned to the medical and psychiatric clinics established at the several penal and correctional institutions.—*United States Public Health Service.*

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 17161

OLD SINUS AT THE RIGHT ILIAC CREST

MEDICAL DEPARTMENT

A Swedish teamster sixty years old entered October 11 for treatment of a sinus at the right iliac crest.

Seven years before admission he fell from his wagon to the ground, lighting on his feet. He felt a momentary sharp knife-like pain in the groin. He had no more trouble until three months later, when after being wet and chilled he had pain in his right groin which made him limp. He noticed two small bunches in the right groin which disappeared after he treated them with liniment and iodine. The lameness increased. Early in April he had chills, fever, malaise, headache, cold perspiration, loss of appetite, constipation and general weakness. April 26 he entered a hospital. A report from that hospital states that his general condition was good and physical examination negative except for glandular enlargement in the right groin. An abscess was opened and drained. In March, eleven months later, he began to have trouble in the operative scar. It was opened by his physician and healed in a short time. Three months later the area opened spontaneously. He treated it himself. From that time he had had soreness and pain in this place three or four times a year, causing him to limp, with immediate relief as soon as the scar broke open.

Five months before his admission to the Massachusetts General Hospital he had an attack of diarrhea which cleared up in a few days after he had taken castor oil. At the same time he had rather severe pain in his left lower quadrant which continued from time to time until his admission, and also swelling in the right inguinal region which had steadily increased. For four months he had had dyspnea, orthopnea and slight cough with some sputum. In September he had to stop work because of weakness and dyspnea. For the past five days the swelling in the right groin had been somewhat painful.

The history he gave at the hospital was not very satisfactory because of his difficulty in recalling details clearly. It is supplemented by notes from Dr. Bishop's records.

The past history is negative, the family history not significant.

Clinical examination showed an emaciated man, flushed, somewhat dyspneic and obviously ill. There was extremely marked pyorrhea. The throat was red and showed much mucus. The heart sounds were of fair quality. The heart was moderately enlarged to the left and downward, the left border of dullness 9½ centimeters to the left of midsternum, 1 centimeter outside the midclavicular line. The pulses were normal. The artery walls were palpable and tortuous. The blood pressure was 115/50. The apices of the lungs were much contracted. No other abnormalities were made out. There was a soft, brawny, fluctuant mass the size of a hen's egg in the right inguinal region with scar tissue about it. The pupils were unequal and irregular but reacted normally. There was tremor of the hands on motion.

The urine was normal in amount, cloudy, and showed the slightest possible trace of albumin at one of two examinations, rare leukocytes to 25 per field at both of two sediment examinations. The specific gravity was 1.022 to 1.028. Blood examination showed 8,900 leukocytes, 87 per cent polymorphonuclears, hemoglobin 65 per cent, reds 3,580,000, slight achromia. Three stool examinations showed no macroscopic or microscopic blood.

X-ray examination with a barium enema showed that the barium passed to the splenic flexure, where it met slight delay. At this point the colon was reduced in calibre to about one-third its normal diameter. The constriction was fairly smooth. At its upper aspect the barium passed out into what appeared to be the retroperitoneal space in the region of the spleen. This extravasated barium took on an unusual shape, somewhat like a mushroom with an unusually wide base and thin linear markings extending in two directions. A small amount of barium given by mouth demonstrated that this extravasated barium was not within the stomach, the stomach being displaced medially and downward. The remainder of the colon was unusually large and was filled with gas and feces. A satisfactory examination of the cecum could not be made. There were no gross abnormalities. The motor meal, however, demonstrated dilated terminal ileum and a deformity of the tip of the cecum. There was no definite evidence of complete obstruction of the small bowel. On palpation the small bowel could be seen to float in what was apparently abdominal ascites. The liver was unusually large and appeared to compress and deform the ascending colon. In the routine fluoroscopic examination the left diaphragm was high and fixed in position. There was fine mottling over the entire area of both lung fields, becoming more dense towards the apices. In both infraclavicular regions there were what appeared to be rounded areas of diminished density suggesting cavities.

On October 24 a medical consultant reported, "The lungs show harsh breathing throughout, with many fine to coarse pleural rubs all over the left base and axilla. The blood pressure is

110/85. Examination of the abdomen is unsatisfactory on account of the sinus. The liver edge is down about four centimeters. The spleen is not felt. No dullness is made out in the left flank. There is no stiffness of the neck. . . ."

On November 7 the patient died.

Clinical Discussion

BY RICHARD C. CABOT, M.D.,
WILLIAM A. BISHOP, M.D., AND
GEORGE W. HOLMES, M.D.

NOTES ON THE HISTORY

Dr. Cabot: The patient's condition early in April is obviously the result of some infection. The abscess that was opened and drained was perhaps the cause of those infectious symptoms that we just noted. From that time until the following March I suppose he was out and at work again, the whole trouble having been so far nothing but an abscess in the groin. After the abscess was opened and healed the second time, I suppose he again went back to work. All this is seven years ago. I take it he has had decent health since that time until comparatively recently.

Dr. William A. Bishop: Yes.

Dr. Cabot: For four months before he came here he had dyspnea, orthopnea and slight cough with sputum, totally different symptoms from anything we have been hearing of before. I take it he has been working until a month before he came here.

Dr. Bishop: Yes, except for short periods when he had to have treatment for the abscess.

Dr. Cabot: Let us think a little about what we ought to keep in mind as we return to the physical examination. In the first place he still apparently has some trouble in the old abscess in the groin which presumably we are not dealing with. On the other side there is some pain in the left lower quadrant which so far I do not know how to explain, and thirdly the symptoms referable to the organs above the diaphragm, more particularly to the heart,—dyspnea, orthopnea, slight cough. With a little cough we should say probably heart orthopnea rather than lung orthopnea. But as it is it does not add up to any single diagnosis I know.

NOTES ON THE PHYSICAL EXAMINATION

In the chest they have got nothing except a little cardiac enlargement and a notably low diastolic blood pressure. There is possibly some old healed tuberculous process at the apices of the lungs, accounting for their being contracted. But it is rather hard to tell about that in an emaciated patient.

That soft brawny fluctuant mass with scar tissue about it that they found in the right inguinal region was undoubtedly the remains of the old abscess, with pus still in it.

I do not see how tremor of the hands on motion can have any significance. It is probably present because he has been sick so long and is so weak.

The fact that the upper colon was unusually large leads us to suspect that there was probably some dilatation behind a stricture.

I do not suppose the deformity of the tip of the cecum was of any importance.

Dr. Holmes: I agree with you.

Dr. Cabot: Before Dr. Holmes reveals the important points shown by x-ray I might as well have a guess as to what is going on. I have not looked at the films yet. It sounds like old tuberculosis of the lungs, like some process in the abdomen which has caused perforation of the intestine with rather astonishingly little reaction. We do not hear of the symptoms of sharp pain, fainting, etc., that we get with acute perforative peritonitis. He was at no time tremendously prostrated. That I have seen a number of times with tuberculous abscesses. Ulcers of the intestine and tuberculous abscesses often quietly perforate a dozen times or more, until when the surgeon gets in there he finds such a state of things that he cannot do anything about it.

Has this patient malignant disease? I should prefer to explain the whole case by tuberculosis if I could. It might conceivably be malignant disease in the splenic flexure and behind that a perforation. The best point against that is the short duration of the symptoms.

Dr. Bishop: There are one or two points that are not brought out here. One is that he came to the hospital with a discharging sinus in his right iliac region. That abscess that had recurred several times had again recurred. He came in with both legs swollen, the left more than the right. Another note made at the second of his hospital admissions states that he had been operated upon, the surgeon stating in his report that he had gone down and evacuated this abscess pretty thoroughly, and had removed what he thought was the remains of an appendix, although there was no pathologic examination of any removed tissue.

There is another significant item in the course of the condition, bearing I think on your statement. He had not been extremely sick very long. Some time late last year he was in a hospital in Boston and was looked over by two good clinicians and a good radiologist, who found nothing in a gastro-intestinal x-ray; nor was there any pathologic condition found by x-ray. They x-rayed his whole trunk, lower spine and his bowel. On each of the hospital admissions he had been described as well developed, well nourished and in good condition, and in none of them had any remarks been made of lung trouble.

Dr. Holmes: Do you know whether or not he had an x-ray of the chest in the other hospital?

DR. BISHOP: I think not. No, I remember nothing about it. Also there were never any symptoms reported that would suggest chest trouble or pulmonary involvement.

DR. HOLMES: Of course this whole x-ray picture is very unusual and very complicated. It would be impossible for me to arrive at any very definite conclusion. I should say that the description is a very excellent one. The man who made the examination put much more into it than I can get from the films. I can only point out some of the things you discussed. The shadow which they described as being mushroom shaped apparently lies close under the diaphragm on the left side, displacing the stomach downward away from the mass. They say that it had no connection with the stomach, and I assume that that statement is correct. It is a pretty high position for the colon. Such an observation as that is unusual. It is a thing that one sees only on rare occasions. It is quite possible that this is a loop of bowel with a narrow channel through which the barium passed into it. I think in all probability their interpretation is correct—something outside the bowel. Because of the difficulty in getting barium past this stricture the distal colon was slow in filling and the observations were not good, Also, the physicians in the wards were unable to empty the colon properly. You can see a fecal mass in the colon. Certainly that is not the type of cecum we see in ulcerative tuberculosis of the cecum. Tuberculous ulcers in the cecum are apt to cause a good deal of spasm. Whether a stricture in this region could prevent emptying of the cecum or not I do not know. There was also some evidence of gas in the small bowel. You see it here. The outlines of the edges of the liver and of the kidneys are not well shown. That confirms somewhat the observation made under fluoroscopy that the patient had free fluid in the peritoneal cavity.

In the chest we have a very definite lesion almost miliary in type involving the greater part of both lungs. The shadows are more dense and more conglomerate than in the upper part of the chest. There is even some retraction of the apices. The question as to whether the cavities are present or not is of course a very important one. We do not get cavities in the chest in many lesions other than tuberculosis, and if we find definite cavities we can be almost sure that we are dealing with tuberculosis. I presume this is what was interpreted as a cavity. The x-ray is notoriously unreliable in cavitation. There may be a cavity present and x-ray not reveal it, and there may be what looks like one when none is present. I think we ought not to rely too much on the x-ray. Such an appearance as that is more suggestive of tuberculosis than anything else, and old tuberculosis here with a sudden flare-up, a general miliary tuberculosis. The same picture may be due to metastatic malignancy. I think we should say tuberculosis here, but we cannot be absolutely sure. I certainly should not want to make a diagnosis on the x-ray alone.

DR. CABOT: On October 24 the blood pressure was 110/85. The former extraordinarily low diastolic is no longer present. Possibly it was a mistake that other time.

Why do you suppose they mentioned that the neck was not stiff?

A STUDENT: They were thinking of the possibility of meningitis.

DR. CABOT: But there is no evidence of it there; if he had tuberculosis in the lungs, and that is possible, he may have had it in the abdomen and he may possibly have had it toward the end in the large meninges.

DIFFERENTIAL DIAGNOSIS

It seems to me to come down to the two things we have been speaking of, tuberculosis and malignant disease. It is a very queer case of tuberculosis. If it is tuberculosis at all it is a very old advanced process, Dr. Holmes, is it not?

DR. HOLMES: There is some evidence of a recent process too, as well as the old.

DR. CABOT: Partly recent, but not all. I think it is only about four months that he has had some cough.

DR. BISHOP: And it was not much even when he was in the hospital just before he died.

DR. CABOT: This old abscess in the groin may have been tuberculous. The fact that it would not heal and went on so long suggests that. Then we have this remarkable finding of the remains of the appendix, quite far from home, you see, all the way from the appendix region to the groin. He did not have any tissue removed, so we cannot verify anything there. We have this dilated bowel behind the stricture with perforation of the bowel and apparently a good deal of barium outside it. There is something wrong with the cecum.

A STUDENT: Could it be possible that when he fell off the wagon he ruptured the hernia and sent the appendix into the hernia?

DR. CABOT: He was so well after that that I should say no. I do not believe that the trauma had anything to do with it at all. Now he has free fluid in the abdomen. Does that help us at all? He could have free fluid with tuberculosis and with malignant disease. I do not see, therefore, that it helps us towards a diagnosis. We are not perfectly sure of the fluid anyway.

DR. BISHOP: There was only a small amount if any.

A STUDENT: What about the liver?

DR. CABOT: I do not believe the size of the liver helps us. It was down anyway. I am not sure whether it was enlarged. If he had chronic tuberculosis, of course that might be amyloid of the liver. That is the only thing I can think of. He has had remarkably little constipation.

There is no doubt about the stricture, is there, Dr. Holmes?

DR. HOLMES: There is evidence of a stricture there, whether due to a growth or adhesions I do not know.

DR. CABOT: Dr. Holmes says he certainly had a narrowing, whether inside or outside the bowel, with dilatation behind it. What seems remarkable about it is that he did not know more about it from the obstruction of his bowels.

DR. BISHOP: Constipation was not a prominent complaint.

DR. CABOT: I do not remember a cancerous stricture of the bowel with so little pain. I am inclined by that fact of the slightness of the pain towards a diagnosis of tuberculosis.

A STUDENT: In regard to amyloid, isn't it against it that the spleen is not enlarged?

DR. CABOT: If we were sure that it was not enlarged, yes.

A STUDENT: The liver could have metastasis, couldn't it?

DR. CABOT: Yes.

A STUDENT: Isn't his age against tuberculosis?

DR. CABOT: His is not the commonest age for tuberculosis. The commonest age is between fifteen and thirty. I can remember clearly many cases of tuberculous peritonitis at his age.

A STUDENT: Of what significance is it that no blood was found in three stool examinations?

DR. CABOT: I should say that so far as it is of any significance, that is against malignant disease. I do not know how often tuberculosis produces blood in the stools.

A STUDENT: Would it be possible that that sinus could be a tuberculous sinus from the cecum?

DR. CABOT: I do not know from what it comes, but a tuberculous sinus I should say is quite possible. An abscess that has been opened a number of times and still will not heal up always makes us think of tuberculosis.

Although I feel very much in doubt, I think I shall say the whole thing was tuberculosis, —lungs, belly, glands, sinus and everything else.

X-RAY INTERPRETATION

The general appearance is that of miliary tuberculosis, fistula of the splenic flexure into the spleen or the splenic area, partial obstruction of the small bowel and probably tuberculosis of the cecum and small bowel.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Miliary tuberculosis.

DR. RICHARD C. CABOT'S DIAGNOSES

Tuberculosis of the lungs.
Tuberculous peritonitis.
Tuberculous glands.
Tuberculous abscess of the groin with persistent sinus.

ANATOMIC DIAGNOSES

Tuberculosis of the lungs.
Tuberculous abscess of the psoas muscle with sinus formation into the right groin.
Tuberculous ulcer of the colon with subdiaphragmatic abscess and perforation of the diaphragm and extension into the lower lobe of the left lung.
Miliary tuberculosis.
Small tuberculous abscess of the gastric wall.
Thrombosis of the left femoral artery.

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: We found tuberculosis and essentially nothing else. A large sinus was present leading down from the groin into the psoas muscle and destroying the whole body of the muscle up to the vertebral column. Usually in these cases we are able to find a lesion of the vertebrae. We were unable to do that here. We x-rayed all his bones again on the postmortem table and chiseled into the vertebrae, the pelvic bones and the femur, but could not find a thing. The abscess also went down the other way and involved the whole group of adductor muscles of the thigh. I could not find any connection of any bone with this tremendous sinus tract. The hip joint also was negative. The deformity of the cecum I think was from pressure of the large abscess cavity and from adhesions between its wall and the cecum. A deep, penetrating ulcer was found in the splenic flexure of the colon leading into an abscess bounded laterally by the spleen, medially by the stomach and superiorly by the diaphragm. The abscess did not actually penetrate the spleen. It had however penetrated the diaphragm and gone up into where it widened out into a cavity three or four centimeters in diameter.

DR. CABOT: Would that shadow in the x-ray do for it, Dr. Mallory?

DR. MALLORY: We felt that the cavity which filled with barium was below the diaphragm in the hilus of the spleen. The pulmonary cavity was two or three centimeters higher and probably did not fill.

DR. BISHOP: When we first looked at this film we thought that what Dr. Holmes now tells us is cavity wall was diaphragm and that the abscess had been below the diaphragm, pushing it upward and then breaking through. I should like to ask Dr. Holmes if it is possible for that to be in the abdominal cavity and forced up and have that appearance of being in the lung.

DR. HOLMES: You can see the line of the diaphragm here above the lesion. If it had perforated the diaphragm it is hardly conceivable that there would not be some inflammatory changes around it.

DR. MALLORY: At the time of autopsy there was some barium left in the subphrenic abscess, but we did not find any in the lung. I do not think it worked its way up as far as that.

DR. HOLMES: Of course there must have been some time between the taking of the x-ray and the time of death. I think the shadow you see here that we were demonstrating is below the diaphragm, and the process you found in the lung probably appeared later.

DR. MALLORY: He had a terminal miliary tuberculosis which was extremely extensive, involving all of both lungs practically uniformly. There were a few old lesions in the lungs, but we did not note any apical cavities.

DR. CABOT: Was that ulcer near the splenic flexure the only ulcer?

DR. MALLORY: That was the only ulcer. A tuberculous abscess was found in the gastric wall, but the mucosa was uninvolved.

DR. BISHOP: There was a thrombosis of the left femoral too. That probably accounts for the rather large swelling of the left leg instead of the right when with a lesion in the right iliac region one would expect the swelling to be bigger in the right leg than in the left.

I should like to ask Dr. Cabot one or two things about this case. It is a case into which the State enters because of the questions raised by the fall from the wagon. Do you think that fall could have produced his original right iliac abscess? Apparently he had a psoas abscess in the beginning and that was drained and redrained. I should like to hear your opinion as to whether it was due to falling off the wagon or to a blow. The Industrial Accident board commissioner said in his findings that he found as a matter of fact that the man had had a blow in December 1922. The patient when he came to the hearing in August 1923 said he had suffered discomfort continuously from the date of the alleged injury, and therefore he felt that he was entitled to an award. Could a blow, or a fall from a wagon that did not cause any trauma, have produced a condition of this sort? I expected to have to answer this question had the man lived, or died with dependents.

DR. CABOT: I do not believe it. The fact that he lighted on his feet makes it unlikely that he was much hurt.

DR. BISHOP: The patient in his own statement made less than five months after the accident, when he presumably knew more about what happened than he remembered later, stated that he did not strike anything, that he fell lighting on his feet, had a momentary sharp pain and then continued with his work.

DR. CABOT: I suppose we have to admit that there is sometimes a definite connection between trauma and the lighting up of a tuberculosis which was present before. But it seems to me it would be very far-fetched to make any such connection here.

DR. BISHOP: What would you say was the subsequent course of his trouble? Did he have intestinal tuberculosis that finally terminated in the abscess of the groin and the psoas muscle, or did that probably originate from his old apical process?

DR. CABOT: The answer is for the pathologist. But I should like to commit myself first. I should say the lung process was probably older than the abscess; but I do not know how anybody is to be sure.

DR. MALLORY: I could not guess any closer than that.

DR. BISHOP: I do not believe the man who operated on him the second time got any real appendix. Dr. Mallory, did you find any remnant of his appendix?

DR. MALLORY: The appendix was found and was normal.

DR. BISHOP: The surgeon said in his report that the psoas muscle was not involved and that he did find what was apparently the remnant of the appendix and took that out.

A STUDENT: Dr. Mallory, may I ask what the liver showed?

DR. MALLORY: The liver was normal in size.

DR. CABOT: It is always dangerous to be sure of an enlarged liver.

CASE 17162*

PROGRESSIVE LOSS OF VISION

CHILDREN'S MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. BRIANT L. DECKER†: This is a nine year old colored boy of West Indian parentage who was admitted to the Massachusetts Eye and Ear Infirmary December 1.

Family history. He is the eldest of four children, one of whom died at three months of age. The parents and the other children are living and well.

Past history. At the age of six months the patient was seen in the Outpatient Children's Room. He was suspected of being a cretin and was treated with thyroid gland for eight months. He developed normally physically and mentally however. At seven years he had tonsillectomy and adenoidectomy. In the same year he also had pneumonia. He has had frequent head colds with occasional sore throats since infancy, compelling him to stay in bed for two or three days at a time. He has always urinated once at night.

Present illness. Until four or five months ago the patient seemed to be perfectly well. At that time he began to complain of pain in the eyes and failing vision. The loss of vision has been progressive. Two months ago it led to his coming to the Outpatient Department Eye Clinic. He was found to have 20/200 vision in both eyes. Examination of the fundi showed blurred disc margins with slight elevation of the discs. The veins were dilated. The arteries were small. Areas of infiltration and pigmentation were

*This case was presented at a conference held on December 12, 1930.
†Interne on the Children's Medical service.

present outside the disc and involving the macula. Admission to the hospital was urged but refused. He was referred to the family physician for medical observation.

About this time he began to pass urine two or three times each night and had occasional dysuria. Then he lost appetite, had epigastric pain at times, began to vomit after meals, became constipated and was occasionally dizzy.

On December 1 he returned to the Eye Clinic because of further failure of vision and was admitted to the Infirmary. While there he vomited several times but had no other complaints. He was transferred to the Massachusetts General Hospital on December 5.

The mother says that she has never noted any abnormality in the appearance of his urine.

Physical examination. The patient has rather dry skin and shows evidence of considerable loss of weight. He is fairly well developed otherwise. His lower lip was noticed to be slightly enlarged at the time of entrance. There was a small excoriation on the right side. Yesterday the lip became much more enlarged and painful. It was considered to be edema. After magnesium sulphate packs were applied the lip became considerably reduced in size. His lungs are clear. His heart is slightly enlarged. The apical impulse is about in the nipple line in the fifth interspace. Slight heaving of the precordium immediately to the left of the sternum is seen. There is a soft systolic murmur at the apex and the base. The aortic second sound is ringing. His pulses are bounding. The pulse tension is increased. The radial arteries and brachials are cord-like, hard and small. X-rays of the extremities were taken to see if there was any calcification. None was found. The blood pressure was 220/163. Since that time the systolic has varied from 225 to 190, the diastolic from 180 to 160. At the time of entry his knee jerks were hyperactive and he showed bilateral sustained ankle jerks. More recently there has been ankle clonus which was sustained on the right but not sustained on the left.

The most striking part of the physical examination is the ophthalmoscopic. The discs are almost obliterated. They look almost like opaque nerve fibers. On the areas where the discs are supposed to be, scattered here and there there is considerable exudate of the "cotton wool" type. There are areas of infiltration and pigment outside the discs involving the area of maculation on each side. There is slight raising of the discs on each side, about 1.5 to 2 diopters. The right eye is involved more than the left. He cannot do more than count fingers at four feet.

Laboratory findings. Blood: red cells 4,120,000, hemoglobin 70 per cent, leukocytes 11,000, differential count normal. Non-protein nitrogen 72 to 80 milligrams per 100 cubic centimeter, creatinin 5.9 milligrams, chlorides 502 milligrams, sugar 123 milligrams, cholesterol 475 milligrams, serum protein 6 per cent.

Urine: occasionally clear, pale yellow, at other times cloudy with a reddish tinge. The specific gravity varies from 1.004 to 1.008. Acid. A large amount of albumin (Esbach, 5 grams per liter). No sugar. Sometimes many red blood cells, sometimes none. Occasionally a few white blood cells. Rare finely granular casts.

Mosenthal two hour test

		Volume of urine	Specific gravity
Day:	7 a.m. to 9 a.m.	78 cubic centimeters	1.005
	9 " " 11 "	69 " "	1.004
	11 " " 1 "	49 " "	1.007
	1 " " 3 "	126 " "	1.006
	3 " " 5 "	105 " "	1.006
	5 " " 7 "	89 " "	1.007
Total day urine:		516 cubic centimeters	
Night:	7 p.m. to 7 a.m.	580 cubic centimeters	1.004

Spinal fluid: initial pressure 190 millimeters, rising on jugular compression to 590 millimeters, then falling to normal on releasing the compression. Pandy positive. One red blood cell. Total protein 47 milligrams. Colloidal gold 1110000000. Non-protein nitrogen 39. Sugar 69.

A tuberculin test, human, was slightly positive.

Since he has been in the Massachusetts General Hospital he has vomited only once.

Discussion

Dr. Harold L. Higgins: The diagnosis here is chronic glomerular nephritis. The case is interesting in that practically all the symptoms that led to his coming to the hospital were eye symptoms. The high blood pressure of 220 is very striking. The prognosis is very poor, both as to life and as to recovery of kidney function or vision. He may live for several months, however. Intercurrent respiratory infections are usually the immediate cause of death.

Later Note

After leaving the hospital the boy remained in bed. His appetite failed and he became more and more emaciated. He was restless at night. He had no convulsions and no pain. He failed gradually, and on January 4 died.

Diagnoses

Chronic nephritis without edema.
Hypertension.
Enlargement of the heart.
Albuminuric retinitis.

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THE COMMON COLD

ALTHOUGH the etiology of the common cold has been studied by various methods of research based on facts applicable to the causes of other diseases, little progress has been made. Suspicion has been expressed that a filtrable virus may be found to be the excitant of this malady. This has been the explanation suggested with respect to some other elusive germs.

The constantly increasing knowledge of the importance of vitamins in maintaining health has led to the supposition that possibly some dietary deficiencies may be more or less contributory to the susceptibility to colds. Dr. E. V. McCollum of Baltimore discussed this subject at the recent meeting of the College of Physicians and expressed the feeling that studies respecting the rôle which vitamins play in health problems may be productive of further understanding of the questions relating to this very important subject. The prevention of colds will promote better general health because they often break the barrier to serious complications. Colds present a very important economic problem in that it is believed that there is an average incidence of two colds each year per person thereby disrupting the continuity of remunerative occupations.

WHAT ABOUT YOUR MILK SUPPLY?

IN buying any commodity the purchaser should get full value for his money but in many instances he is unable to determine the relative value of many necessary articles.

This is especially true of milk which is one of the universal foods and unless this product has been thoroughly studied by competent inspectors, the buyer may be paying an unreasonable price for one sample which may have the same appearance as another but which is inferior in its essential ingredients or may be loaded with disease producing bacteria.

If he is so fortunate as to live in a community where all milk sold is examined at frequent intervals by a qualified inspector, he can ascertain whether his supply is up to high standards.

Brookline publishes in its *Health Bulletin* the analyses of milk sold in that town and it is found that the average dairy score varies from 59.3 to 97.4. The average fat content varies from 3.75 to 5.25 and the bacteria per cubic centimeter from none to 52,000. These are all within standard requirements but when one is trying to get full value for his money, he would like to get that grade of milk which averages to stand in the higher groups.

It is interesting to notice in this report that some milk producers sell to markets a product which has a lower dairy score than that served to others. One large general provision store sells its lowest grade milk from one producer whose highest grade is over thirty points above that of the lowest.

This record seems to indicate that the best milk, even though it may cost more, is likely to be the cheapest in the end.

This custom of the Brookline Board of Health is a worthy example which should be followed by those municipalities where less attention is paid to the examination of milk. The familiar assertion that health is purchasable is applicable to the use of milk which has a high place in the essentials of an ideal diet.

Although progress has been made in standardizing milk production and distribution, there are some objectionable gaps which have not been closed.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

RUDY, ABRAHAM. A.B., M.D. University of Berlin, Germany, 1923. Assistant in Medicine, Beth Israel Hospital. Teaching Assistant in Medicine, Tufts College Medical

School. His subject is: "Urticaria and Insulin Resistance With Reference to the Relation of the Skin to the Carbohydrate Metabolism." Page 791. Address: 311 Commonwealth Avenue, Boston.

THORNDIKE, AUGUSTUS, JR. M.D. Harvard University Medical School 1921. F.A.C.S. Junior Assistant Surgeon, Children's Hospital. Assistant in Surgery, Harvard University Medical School. His subject is: "The Indications For Abdominal Surgery in the Infant." Page 796. Address: 319 Longwood Avenue, Boston.

RABINOWITCH, I. M. M.D., C.M. McGill 1917. Assistant Professor of Medicine, and Lecturer in Biochemistry, McGill University. Director, The Department of Metabolism, The Montreal General Hospital. His subject is: "Clinical and Laboratory Experiences With High Carbohydrate-Low Calorie Diets in the Treatment of Diabetes Mellitus." Page 799. Address: The Montreal General Hospital, Montreal, Canada.

LOCKE, HERBERT E. A.B. Bowdoin College 1912. LL.B. Boston University 1915. General and Trial Counsel, Maine Medical Association. His subject is: "The Malpractice Suit: Why and Wherefore." Page 810. Address: Augusta, Maine.

THE BOSTON MEDICAL LIBRARY

PHILIPPE PINEL
1745-1826

WHAT Charles Dickens did through his novels to arouse his fellow-countrymen to certain abuses practiced by English officialdom, Philippe Pinel did in respect to the treatment of the insane in France, and, by extension of the principles he established, throughout the world. We hear stories, even now from time to time, concerning the abuse of inmates of institutions for the mentally defective that call for an investigation, for though the public as a whole is no longer callous in such matters, still it is probable that in the handling of sufferers from mental disorders there are occasional outbreaks of man's innate savagery when provoked by the sight of this same characteristic in those in whom it is out of control. That in a century we have arrived at a time when there is as little of it as there is, may be ascribed to the efforts of Pinel. Not only did he strike from these victims of mental disorder the shackles that were regarded as an essential part of their treatment at that time but he instituted those methods in dealing with mental illness that are the basis of most of our present-day treatment of the insane and for the study of criminal psychology.

To understand something of what Pinel accomplished it is necessary to get a picture of the conditions against which he contended. To quote from a Eulogium pronounced by Pariset at Pinel's death it may be possible to convey some idea of the terrible situations prevailing at the Bicêtre and Salpêtrière: "Vice, crime, misfortune, infirmity, the most varied and revolting diseases, all were heaped together and treated alike. The buildings were untenable. Men crouched there covered with filth, in cells of stone, narrow, cold, dripping, without air or light and furnished only with a litter of straw, rarely renewed and soon infected, hideous lairs in which one would have hesitated to shut up the vilest animal. The insane, thrown into these sewers, were at the mercy of their keepers; and their keepers were malefactors from the prisons. The wretched patients were loaded with chains and tied with ropes like convicts. . . . The injustice of their treatment transported them with rage, despair and wrath inflaming their deranged minds, drew from them night and day cries and howlings that rendered still more dreadful the clanking of their chains." Set such a picture as the above off against the background of the tragic scenes being enacted at the height of the French Revolution and one gets a better idea of that with what Pinel had to contend when he advocated releasing insane patients from their restraints. A famous picture in the Salpêtrière, painted by Robert Fleury, represents Pinel on his rounds of the insane wards, directing a mechanic in the removal of chains from the inmates, some of which had been worn from ten to thirty years. It was in 1792 that this happened and was the result of Pinel's having been appointed by the Commune to take charge of the Hospice des Bicêtre, a large general hospital in which were confined two hundred insane, 53 of whom were in chains. When he proposed setting these cases free from their fetters a Commune official ridiculed the idea but finally gave his consent remarking that he "feared he would be a victim of his presumption". No violence followed their release and better conditions immediately ensued. Two years later he accomplished the same reforms at the Salpêtrière.

Philippe Pinel was born in 1745 at St. Andrè, in the Department of Turin, France. His father was a physician and he also had an uncle in the same profession. His early training was with a private tutor. Having finished his classical studies at Lavour he attended the University at Toulouse entering when he was 17. He obtained his doctorate from there in 1773. He was obliged to tutor in order to pay his way through Toulouse. He was a thorough scholar, anxious to train himself in the humanities before taking up the practical work of life. In pursuit of this idea he perfected himself in classical studies and in geometry. It was not until he was 29 that he obtained his degree in medicine.

With a view to wider opportunity he went to

Montpellier, at that time perhaps the most renowned school in France. He started practice here but was obliged to fall back upon his tutoring to pay his way. He spent his time in the study of comparative anatomy and physiology. At a time when a positive, self-assertive attitude was more likely to succeed than a retiring, apologetic one, Pinel, who was a supersensitive soul, found it very difficult to make his way and after three years of unsuccessful endeavor to secure a practice in Montpellier, he went up to Paris. He was so poor that he made the journey on foot. This was in 1777. He was counselled by Cousin, the great geometer, to whom he brought a letter, to devote himself to mathematics. This was not to his taste. He went back to his teaching and pursued his studies upon the application of statics and mechanics to physiology. He got himself before the public by journal articles and by translating Cullen's "Institutes of Medicine" into French. Fourteen years passed after he came up to Paris from Montpellier, and still, outside a few exceptional men, he was practically unknown and might have remained so had not three of his friends who knew what a fund of knowledge he had been accumulating all these years, insisted that he was the only man with ability enough to bring order out of the chaos prevailing in the insane hospitals of Paris. Couthan, the then presiding officer of the Commune, fearing that the proposed reform in the treatment of the insane was merely a device of the aristocrats to set free man power to aid them, made an inspection of the hospital wards with Pinel who apparently was able to convince him that his judgment might be trusted. As a matter of fact Pinel permitted the hospital wards for the insane to be used as a retreat for some who were being hunted down by the Commune. Feeling ran so high in those exciting times that Pinel was, upon one occasion, seized and hurried away by an angry mob who were bent upon hanging him. He was rescued by one of the very men whom he had released from bondage and put in the way of being cured of his mental aberration. After three years at the Bicêtre he was transferred to Salpêtrière where he continued during the remainder of a long life. He was one of a board appointed to organize the Medical School. Crowds of students flocked to his courses and out from here went that body of disciples who spread the gospel he had taught to all parts of Europe and America.

In 1800 he published his "Traité Médéco-philosophique sur l' Aliénation Mentale." Though some of the ideas expressed there in regard to the management of the insane have undergone considerable modification since Pinel's day, nevertheless the underlying principles have governed practice from that time to this. Later there appeared a second work "Nosographie Philosophique", which for twenty years was the standard textbook for students and practitioners. In the latter half of his life he came into his own and honors were awarded him which must in some measure have made up for the scant recognition he received in his earlier years. He was called to the Chair of Hygiene in 1794 and to that of Pathology in 1795. In 1803 he became a member of the Institute and in 1805 was named as Napoleon's consulting physician. It is related that when Napoleon returned from Elba he inquired of Pinel if insanity was on the increase to which he replied: "No, but I thought to myself that superior geniuses and famous and ambitious conquerors were not exempt from a trace of madness."

The treatment of the insane and the reformatory methods applied to criminals were probably never in a worse state than they were at the close of the 18th century and the time was ripe for the reformer.

William Tuke, a Quaker, in York, England, began the humanitarian treatment of the insane at about the same time as did Pinel and Howard did somewhat the same pioneer work in humanizing the treatment of the occupants of prisons in England. The problems confronting the alienist and the criminologist today are turning for their solution more and more to the psychiatrist and though Pinel might not now be able to qualify in the class of scientific psychiatrists, as they are trained in our times, he unquestionably possessed an insight into the nature of mental derangement not before appreciated and it is said that at his funeral there were a great number of former occupants of institutions where he had attended who had been liberated and restored to mental health by his suggestions. After a long life (81 years), the first part of which was devoted to preparation in medicine, physiology and psychology, the latter part spent in making application of this knowledge to the practical problems of psychiatry, Pinel died on the 25th of October 1826 and was buried with all the honors that the most distinguished French scientists of the day could show his memory.

MISCELLANY

THE REDUCTION OF THE COSTS OF MEDICAL CARE

Dr. Winford H. Smith of Johns Hopkins Hospital is reported to have said that the reduction of the costs of medical care can be brought about by better coördination of medical practice, hospitals and public health facilities.

1930 THE BEST HEALTH YEAR

Measles, scarlet fever, whooping cough, and diphtheria are being rapidly conquered, according to a report in the recent *Statistical Bulletin* of the Metropolitan Life Insurance Company. The combined death rate among the company's policyholders for these four diseases was 26 per cent. lower in 1930 than in 1929. The reduction in the diphtheria rate alone was considerably greater.—*U. S. Children's Bureau.*

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1930 AND SEVEN YEAR AVERAGE

MONTH ENDING APRIL 4, 1931

Diseases	1931 Week ending Mar. 14	1931 Week ending Mar. 21	1931 Week ending Mar. 28	1931 Week ending Apr. 4	Average cases reported for week corresponding to Apr. 4 for past seven years	1930 Week ending Mar. 15	1930 Week ending Mar. 22	1930 Week ending Mar. 29	1930 Week ending Apr. 5
Cerebrospinal Men.	2	2	1	—	3	—	2	1	—
Chickenpox	107	88	90	63	71	113	88	108	111
Conjunctivitis Inf.	2	—	2	—	2	—	1	—	3
Diphtheria	15	6	6	5	26	15	20	14	11
Encephalitis Epid.	—	—	1	—	—	—	1	1	—
German Measles	6	2	5	4	50	54	46	69	53
Influenza	24	17	36	9	30	14	9	12	7
Measles	766	794	870	542	265	16	16	13	31
Mumps	66	68	88	69	102	44	33	28	25
Paratyphoid Fever	—	—	—	—	1	—	—	—	—
Pneumonia (Broncho)*	63	56	50	35	42	43	70	46	45
Pneumonia (Lobar)	52	48	65	56	66	68	62	57	64
Poliomyelitis	—	—	—	—	—	1	—	—	—
Scarlet Fever	59	54	85	59	118	123	139	115	117
Septic Sore Throat	—	2	1	4	2	2	1	1	5
Tetanus	—	—	—	—	—	—	—	2	—
Tuberculosis (Pul.)	43	26	24	29	31	31	19	44	33
Tuberculosis (O. F.)	2	3	4	1	4	4	1	8	2
Typhoid Fever	1	—	—	—	2	3	1	2	1
Undulant Fever†	—	—	—	1	—	—	—	—	—
Whooping Cough	95	81	101	80	62	29	54	49	57
Gonorrhea	28	41	21	12	30	29	31	40	26
Syphilis	27	46	48	54	32	40	49	41	35

*Made reportable January 1, 1925.
†Made reportable August 14, 1928.

Remarks: No cases of Asiatic cholera, glanders, plague and yellow fever during the past seven years.

RESTRICTIONS OF THE SALE OF METHANOL WOOD ALCOHOL

The sale and distribution of methanol wood alcohol will be stringently regulated in Maryland, according to the provisions of the Edmunds Bill which was adopted by the Legislature and signed by Governor Albert C. Ritchie, Tuesday, April 7.

The bill prohibits the sale of methanol wood alcohol whether sold for anti-freeze or other commercial purposes unless sold in containers bearing a warning label stating that it is a violent poison and cannot be made non-poisonous and will cause blindness or death if taken internally. Methanol must also be colored to prevent it from being confused with potable alcohol and must contain a substance which will cause vomiting if it is imbibed.

A record must be kept of all individual sales in containers of less than fifty gallon drums whether to be used as an automobile anti-freeze, paint or other commercial solvent and the record must state the date, name and address of the purchaser and intended use. The penalty for violation of the law includes a fine of not more than five hundred dollars or imprisonment for not less than three months nor more than one year, or both.

The bill was endorsed by the Maryland Automobile Club and labor and public health organizations.

THE ROLE OF MANGANESE IN ANIMAL BEHAVIOR

Dr. Elmer V. McCollum, professor of chemical hygiene at Johns Hopkins University, seems to have demonstrated the influence of manganese in promoting maternal affection in rats. Eliminating manganese from the diet seems to destroy maternal solicitude for the progeny.

Resumption of the manganese content in the diet brought about the normal maternal behavior.

Although this study is not reported to have been made on women, it may be that it will be as effective in the human species as it is in rats. If so, it suggests search for other chemicals or biologic prod-

ucts which may change the behavior of abnormal persons. Manganese or other metals together with grandular products may be of importance in changing the characteristics of aberrant men so that unsocial behavior may rarely require disciplinary measures. Speed the day when the mental deviate can be restored to normal by the ingestion of appropriate drugs.

CORRESPONDENCE

THE COOPERATION OF PHYSICIANS IN THE PREVENTION OF DIPHTHERIA

The School Committee of the City of Boston
Administration Building, 15 Beacon Street
Department of School Hygiene

April 6, 1931.

Editor, *New England Journal of Medicine:*

The Department of School Hygiene of the Boston Public Schools will begin on May 4, 1931, and will continue for three successive weeks, to immunize with toxin-antitoxin against diphtheria, all children in the kindergarten and first grade classes who will present written requests for this treatment, signed by their parents or guardians. The school physicians, assisted by the school nurses, will administer the treatment.

It is a function of the Department of School Hygiene to prevent disease among the children of the public schools, and diphtheria prevention has been one of its major activities since the efficacy of toxin-antitoxin as a preventive measure has been everywhere acknowledged. Certainly the figures which have come from authoritative sources are sufficiently convincing to justify the prediction that if continued with the same zeal and energy which have in the past characterized the work of diphtheria prevention throughout the country, public agencies and physicians will ultimately banish diphtheria from the list of prevalent diseases and place it among those that are now considered as rare and uncommon.

The Acting Director of School Hygiene of the Boston Public Schools, appreciating the part which physicians should take in every disease prevention campaign, desires to interest physicians in the work of diphtheria prevention which the schools and the Health Department of our City have been doing by joining with and eventually supplanting them in their effort to stamp out this preventable disease. The Department is committed to the established policy of protecting all children against diphtheria who have not been immunized by their physicians, and the more physicians will assume this responsibility the less it will become necessary for the schools to engage in this preventive work among school children. Physicians are, therefore, urged to communicate with families with whom they have professional contact and arrange for the immunization of their unprotected children. Physicians are also requested to issue to children whom they have immunized and to whom they have given the *final Schick Test*, a certificate setting forth these facts, for the records of the schools.

Now that the practical value of diphtheria immunization has been impressed upon all communities through the work of public agencies, the practicing physicians should assume this responsibility as part of their professional activities.

Very truly yours,

SOLOMON H. RUBIN, M.D.,
Acting Director, Department of School Hygiene, Boston Public Schools.

RECENT DEATHS

BAER—DR. WILLIAM S. BAER, internationally known orthopedic surgeon, died April 7, 1931, in Baltimore, aged fifty-nine years. Dr. Baer was a member of the faculty of Johns Hopkins Medical School for thirty-two years and his name was connected with a number of medical discoveries. As chief orthopedic consultant of the American Expeditionary Forces he found that the grub of the bluebottle fly would clear up infections of the bone that defied all other methods of treatment.

Dr. Baer, born in Baltimore in 1872, was educated at Johns Hopkins. His widow was Miss Ruth Adams of New Haven.

BURT—DR. FRANK L. BURT, physician and surgeon, died at his home, 11 Pond Street, Jamaica Plain, April 7, 1931, after an illness of a month. He was a native of Cheshire, born seventy-three years ago, and was educated at Tufts College and the Harvard Medical School, from which he was graduated in 1884.

For eleven years Dr. Burt practiced in Peabody, later in Boston as the owner of the Union Hospital on Massachusetts Avenue, and for seven years in Jamaica Plain. He is survived by his wife; a brother, John L. Burt of Adams, and a sister, Mrs. Anna B. Bollig of Framingham. He was a member of Eleusis Lodge of Masons of Boston.

MEIGS—DR. RETURN JONATHAN MEIGS, ophthalmologist of Lowell, died in that city, April 6, 1931, at the age of 60.

Dr. Meigs was the son of Joe Meigs, the inventor of the Meigs elevated railway, predecessor of the present system. Return Jonathan, the fourth bearer of a name which came down from Revolutionary times, was born in Lowell, May 24, 1870, and educated in the schools of Lowell. Following his graduation from Harvard Medical School in 1894 he studied ophthalmology abroad and was at one time junior assistant in the Royal London Ophthalmological Hospital. In 1906 he was assistant ophthalmologist to the Lowell Hospital.

Dr. Meigs was a fellow of the American Medical Association and of the Massachusetts Medical Society.

O'MEARA—DR. MICHAEL JOHN O'MEARA, physician in charge of the Summer Street branch of the Wor-

cester State Hospital, died in his hospital apartment, April 1, 1931, after an illness from heart disease of nearly a year.

The son of John and Bridget Conlon O'Meara he was born in Milford, June 9, 1861, and received his education in the Worcester public schools and in private schools in Montreal and Ottawa, Canada. Holy Cross College, Worcester, gave him an A.B. degree in 1882 and Harvard Medical School an M.D. in 1886. After serving as house officer at the Carney Hospital, South Boston, he settled in practice in Worcester and was physician to St. Vincent Hospital from 1888 to 1914. He was assistant physician to out-patients at the Worcester City Hospital and went through the grades until he was made a consulting physician in 1914. From 1916 to his death Dr. O'Meara was neurologist to St. Vincent hospital and from 1913 was physician in charge at the Summer Street branch of the State Hospital. He served as city physician from 1906 to 1909 and physician to Holy Cross College from 1902 to 1915.

Other offices he held were: Member of the school committee, 1893-1906 and 1900-1909; chairman Massachusetts State Board of Insanity, 1913-1916; trustee Bay State Savings Bank, 1903 until his death; treasurer, Democratic City Committee; fellow American Medical Association and Massachusetts Medical Society, American Psychiatric Society; Harvard Club of Worcester, Harvard Club of Boston; Holy Cross Club of Worcester; Washington Club, Knights of Columbus, Div. 24, A. O. H.; Court Damascus, F. of A., and Worcester lodge, B. P. O. E.

Dr. O'Meara is survived by his widow, Catherine Bernard, formerly a dentist, his son, John W. O'Meara, of Worcester, a fellow of the State medical society, and by a daughter.

PROVANDIE—Dr. Paul Hector Provandie, an active practitioner and former mayor of Melrose, died suddenly of heart disease at his home in that city, April 7, 1931.

The son of Charles A. and Mary Emma Provandie, he was born in Charlestown, February 25, 1875. He attended the Somerville grammar and Melrose high schools and then entered the Lawrence Scientific School at Harvard, changing to the Harvard Medical School, where he took his M.D. in 1898 with the rank of *cum laude*. Subsequently he pursued a course in sanitary engineering and assisted in the anatomy and physiological laboratories at Harvard. Settling in practice in Melrose he joined the Massachusetts Medical Society in 1900 and carried on a busy general practice while devoting himself largely to surgery. He acted as associate medical examiner of the third Middlesex District for many years and held this position at the time of his death, as he did that of school committeeman and member of the Melrose hospital staff. Dr. Provandie was the tenth mayor of the City of Melrose, in 1923-1924, and at one time was on the board of Health. During the World War he served with one of the Harvard units with the rank of lieutenant.

He is survived by his widow, who was Miss Margaret Bell, a former nurse at the Melrose hospital, and by one daughter.

NEWS ITEM

A LECTURE ON THE HARRISON NARCOTIC LAW—On April 29, 1931, Mr. Chester H. Clark, Chief of the Narcotic Division of the Internal Revenue Service of Boston, will deliver a lecture on the Harrison Narcotic Law and the problems incident to drug addiction, before the students of Boston University Medical School.

A similar lecture was delivered before the students of Harvard University Medical School by Mr. Clark on April 3.

It is gratifying to know that medical students are to be instructed in the application of the law relating to narcotic drugs and the management of addicts.

Some physicians could attend this lecture to their advantage.

NOTICES

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 on Thursday, April 23, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. Lewellys F. Barker, Clinical Professor of Medicine, Johns Hopkins Medical School, Baltimore, to which physicians are cordially invited. These clinics will be held regularly on Thursday afternoons.

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces the following-named open competitive examinations:

Medical Officer
Associate Medical Officer
Assistant Medical Officer

Applications for the position of medical officer, associate medical officer, and assistant medical officer in general medicine and surgery will be rated as received by the United States Civil Service Commission at Washington, D. C., until June 30, 1931.

The examinations are to fill vacancies in the Departmental Service, Washington, D. C., Veterans' Bureau, Public Health Service, Indian Service, Coast and Geodetic Survey, and Panama Canal Service.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city or from the United States Civil Service Commission, Washington, D. C.

REPORTS AND NOTICES OF MEETINGS

WILLIAM HARVEY SOCIETY

On Friday evening, April 10, 1931, Dr. Herbert S. Hutchinson, of Milford, N. H., and Dr. Henry A. Christian, Physician-in-chief at the Peter Bent Brigham Hospital, addressed a large audience at the Beth Israel Hospital Auditorium on the subject, "The Old and the New in General Practice." The lecture was sponsored by the William Harvey Society of Tufts College Medical School.

Dr. Cadis Phipps, Professor of Medicine at Tufts College Medical School, was chairman of the evening.

Dr. Hutchinson, who is 85 years old, and has been in general practice in small towns in New Hampshire for over 50 years, discussed the habits, customs, and activities of fifty years ago and compared them with the present time. When Dr. Hutchinson started on a medical career about 1870, it was the period of preceptorial medical education. He was apprenticed in the office of a practicing doctor for two years during which time he studied anatomy, physiology, and materia medica. Then he spent some time making bedside visits among the sick. Following this, he took a course of lectures at the Bowdoin Medical School, and finally, studied surgery at the Bellevue Hospital in New York. While at Bowdoin, he studied under Dr. William Warren Green in surgery. Dr. Green was called the ambidextrous surgeon because of his ability to operate with either hand. He also studied under Dr. Mitchell in obstetrics and gynecology, Dr. Carmichel in chemistry, and Dr. Gerrish in Materia Medica. Dr. Gerrish fifty years ago predicted that medicine would be divided and specialized into three main groups. 1. The care and repair of wounds. 2. The care of the pregnant mother and the child. 3. Teaching people hygiene and the prevention of disease. It was Dr. William Warren Green who differentiated laudable and bad pus.

In 1878 he saw the demonstration at Bellevue Hospital of Lister's antiseptic technique which consisted in spraying the surgeon, his assistants, and the operating room with carbolic acid from high pressure steam atomizers.

Dr. Hutchinson, after fulfilling the requirements for recognition as a doctor, began in a small town in New Hampshire. There he did amputations of the fingers, hands, arms, toes and legs, conducted many deliveries, removed tumors and cancerous breasts, extracted many teeth,—and thinks that he has pulled about a "barrell-full".

Dr. Hutchinson told of his early experiences with heart disease, pneumonias, obstetrics, malpractice threats, typhoid outbreaks, and scarlet fever epidemics.

In his obstetrical work, he once had to deliver a patient in the center of the room on the floor. He later found out that this was done so that too much bed linen would not be soiled. Of course, asepsis was not employed.

Another time he traveled for miles in the middle of the night with the temperature ten degrees below zero through many high snow drifts on foot only to find that the woman was in false labor. Two weeks later when real labor ensued and the child was born he was not even notified of the event.

At another time he had two patients living a quarter of a mile apart in labor at the sime time and both were delivered simultaneously.

Dr. Hutchinson believes that as the older practitioners pass off the stage, the young graduates do not carry on the torch of the old timers. There are now many small towns and villages in New England where a doctor is not easily available and sometimes it is impossible to secure one. It is probably due now to two things: First, there is a lack of the "small town" medical school, whose purpose is to train doctors for the practice of medicine in the rural districts; Second, the writers of the present time spread a great deal of propaganda about the disagreeable features of country practices. This is not so as Dr. Hutchinson pointed out, because there is very much medical material in a country practice as well as social contacts and moderate financial success. The part played by the automobile, good roads, telephone, radio, and other twentieth century conveniences has radically changed the so-called country life. There are two reasons why a young man goes into medicine. First, because he likes it, and second, because he wants to earn a living. And both of these can be completely satisfied in a country general practice.

Medicine today is too highly specialized. The general practitioner of fifty years ago was the basis of the medical structure, and he is today. Specialization is taking medicine and spreading it out too thinly, and as a result, it goes into fields where it really is not needed. Furthermore, there are so many specialists that the cost of medical treatment is very high. Ninety per cent. of the medical cases can be handled by general practitioners. Most people like to go to one doctor and get treated by that doctor. Very few can afford or like to be sent around from one doctor to another.

Dr. Hutchinson then discussed the part played by nurses in the treatment of medical cases. He pointed out that all practical nurses are not always trained, and that all trained nurses are not always practical, and that no nurse should assume the doctor's responsibilities unless a crisis demands it.

Dr. Christian opened his address by stating that he believes that there has not been a great change in the practice of medicine in the past fifty or one hundred years.

The patients are of the same type. The mental attitude, the desire to get well, and the economic conditions are the same in the great majority of the cases.

Many of the diseases are the same, and relatively little more is known about them today. In pneumonia, for example, there are just as many deaths today as there were fifty or one hundred years ago. Other diseases which are the same and are common today are malaria, heart disease, cirrhosis of

the liver, cancer, and Bright's disease. Of this last mentioned, only the terminology has changed, but the original descriptions of the signs and symptoms are the same as first described by Bright.

The methods of diagnosis are the same. The five senses are generally primarily used. Today many instruments are employed as a check, but undoubtedly at the expense of the five senses. These instruments which are being used today in many cases are really not necessary.

The intelligence of the medical profession is about the same, although some may disagree with respect to this point.

These practically unchanged conditions comprise the majority of the medical cases. A general practitioner can diagnose and treat about ninety to ninety-five per cent. of the medical cases without the use of the aid of complicated and expensive present-day instruments.

However, some diseases have changed during this time. Rheumatic fever is milder today than fifty years ago, but the cardiac complications are still of the same severity. Today rheumatic fever may be so mild that it is not always easy to recognize it.

In pulmonary tuberculosis, the death curve is gradually falling but no one can really account for it. The curve started to drop before any real attempt was made to control it. Even the discovery of the tubercle bacillus, the use of sanitoria, special diets, etc., have failed to make any radical drop in the death curve.

With other diseases the more we study them the worse they seem to get. Such conditions are found with hypertension and vascular diseases.

Smallpox is getting so mild now that it is even difficult to get vaccination bills passed in some states, especially on Beacon Hill.

Appendicitis, with its more accurate method of diagnosis and aseptic surgical technique, is the cause of more deaths today than fifty years ago.

Typhus fever is a very mild disease whereas fifty years ago it was a dreaded condition.

With the use of insulin today, one would think that there would be a decrease in the fatalities. On the contrary, the fatalities are on the increase in spite of the use of special diets and insulin.

However, there are certain diseases that have changed considerably in their control. Such diseases as diphtheria, pernicious anemia, tetanus, and syphilis have responded exceptionally well to the new methods of treatment, and as a result, are well in hand in the majority of cases.

Certain other diseases are gradually decreasing, probably due to better water supply, pasteurized milk, and quarantine regulations. Such diseases are typhoid fever, scarlet fever, and diphtheria. Antitoxins, vaccines, serum, and other protective measures have also aided in decreasing these diseases. Smallpox has been pretty well controlled in most states by means of vaccination, although the United States has the greatest number of cases for any civilized country. Lead poisoning, gout, and scurvy, seem to be decreasing rapidly.

Other diseases have manifested themselves as entirely new entities within comparatively recent years. Such conditions as undulant fever, encephalitis (with its pitiful sequelae, as the Parkinsonian Syndrome) agranulocytic angina, heart infarction, tularemia, and massive collapse of the lung, come into this category.

Some diseases have been controlled in the past only to make their appearance with a gradual but constant increase. Such is the case of pellagra, which is increasing in the southern states especially in North Carolina.

Diabetes seems to be on the increase, especially in New York City in the Jewish sections. Peptic ulcers of the duodenum were not diagnosed years ago, and seldom found at autopsy. Today, it is one of the commonest diseases of the gastro-intestinal tract, and is diagnosed, very easily, early. Rickets is increasing but more in the cities than in the country sections.

As a result of these facts it can be deduced that there is really not such a great change in the past fifty or one hundred years in the majority of the medical cases.

Dr. Christian read an excerpt on other factors which enter into medicine and concerns the general practitioner of today, and did not fifty years ago. These are 1, The Public Health Service; 2, Hospitals; 3, Trained Nurses; 4, Laboratories, especially X-Ray; 5, Laboratory Technicians.

The next lecture of the William Harvey Society will be held on Thursday evening, May 7, 1931, at the Beth Israel Hospital Auditorium at eight o'clock. The speaker of the evening will be Rabbi Harry Levi, of the Temple Israel. The subject will be "Education and Life." Dr. David Berlin, of the Tufts College Medical School faculty will be chairman.

GREATER BOSTON BICKUR CHOLIM HOSPITAL

At the last staff meeting of the Greater Boston Bickur Cholim Hospital on April 9, 1931, at 45 Townsend Street, Roxbury, Dr. S. A. Levine gave an informal talk on clinical electrical cardiography, illustrated with numerous charts from his own cases.

This talk was most helpful and informative, as the hospital is taking care of a considerable number of cardiac cases, and the acquisition of an electric cardiograph apparatus is at present under earnest consideration.

HARVARD MEDICAL SOCIETY

The regular meeting of the Harvard Medical Society was held at the Peter Bent Brigham Hospital at 8:15 P. M., on the evening of March 25, with Dr. Lyman Richards presiding.

The surgical case was presented by Dr. Hoen:

The patient was admitted several weeks ago in a semicomatose condition. He had suffered with headaches for a month with rapid loss of consciousness before admission. Physical examination showed choked discs, and pyramidal tract signs on the right side. Ventriculogram showed air in the right side only, the right ventricle being displaced

backward and to the right. Therefore a left frontal bone flap was raised. The cortex was under pressure and an exploring needle met with a resistant mass well back in the frontal lobe. By electrosurgery the brain was incised down to the mass which had a thick capsule and from which yellow creamy pus was aspirated. This was carefully sucked out, the capsule opened, the lining fixed with Zenker's solution, packed, and sewed up. The abscess was thus converted into a solid tumor and later removed as such, a rubber tissue drain being left.

Recovery has been uneventful. There has been only one other such case in this hospital so treated.

In discussing the case, Dr. Gilbert Horrax stated that a brain abscess is not ordinarily approached by a bone-flap. Usually a small opening is made and the capsule of the abscess opened and its edges sewed to those of the wound, or simple tapping done. Bone flap operations are reserved for those cases in which neoplasm is suspected.

The medical case was presented by Dr. Diack as a case of aortic aneurism: A forty-year-old female patient complained of pain in the back, of one year's duration, originating at the time of an attack of bronchopneumonia. Strapping to support the sacroiliac joints had given no relief. Ten years previously she had had a pelvic operation for lumbar pain. Present Illness: Pneumonia one year ago, following which she coughed one month. There then developed a vice-like pain in the chest and back. Coughing became more severe, and productive of flecks of blood. Gastro-intestinal distress developed. The pain became sharper and localized in the upper back. In the last few weeks there had been palpitation and increasing dyspnoea.

Physical examination showed pupils fixed to light and reacting slightly to accommodation. The heart was enlarged to the left with the apex in the 5th interspace. The aortic second sound was accentuated and could be felt as a distinct shock over the aortic area. There was a soft systolic murmur at the apex and a grating one over the second left interspace. There was dullness, absent tactile fremitus, and diminished breath sounds and whispered and spoken voice over seventh dorsal vertebra and an area extending to the left scapula.

Blood tests gave a two plus Wassermann with a negative Hinton. Later all were negative. Urine showed clumped white cells and a small amount of albumin. X-rays showed a non-pulsating mass attached to the descending portion of the arch of the aorta, in contact with fifth and sixth thoracic vertebrae and adjacent ribs with some erosion of the vertebrae.

The speaker of the evening was Dr. Arthur McLean, surgical resident. His subject was "Endothermy, Chameleons, Jungle Temples, and Avertin." This very interesting talk was an illustrated account of a trip through England, Germany, the Mediterranean, and parts of Asia, which he had enjoyed through the George Gorham Peters Travelling Fellowship.

Following this the society was entertained with some moving pictures of burlesque bronchoscopy, by an anonymous author.

THE WACHUSETT MEDICAL IMPROVEMENT SOCIETY

The last meeting of the Wachusett Medical Improvement Society was held at the Holden Hospital, April 1, 1931. Dr. T. L. Story of Southbridge read a paper on "Industrial Medicine." The paper proved very interesting and brought out the great amount of work being done by Dr. Story at the American Optical Company at Southbridge. Discussion followed.

Through the courtesy of Davis & Geck a four-reel film was shown entitled "Traumatic Surgery of the Extremities."

WILLIAM T. KNOWLTON, M.D.,
Secretary.

NEW ENGLAND SOCIETY OF PSYCHIATRY

Annual Spring Meeting of the New England Society of Psychiatry will be held April 21, 1931, at the McLean Hospital, Waverley, Massachusetts.

PROGRAM

"The Mental Hygiene Clinic at the Massachusetts General Hospital," by Kenneth J. Tillotson, M.D., Superintendent McLean Hospital.

"Psychoses and Infant Behavior," by George E. Gardner, Ph.D.

Buffet lunch will be served at one o'clock.

Meeting immediately after lunch.

Prizes for the best papers embodying research in psychiatry, published during the year 1930, will be awarded at this meeting.

All members are cordially invited to arrive early to visit the new Occupational Therapy Department and other new departments in process of construction.

BOSTON MEDICAL HISTORY CLUB

ANNUAL MEETING

This meeting will be held at Boston Medical Library, April 21, at 8:15 P. M., 8 The Fenway, Boston.

"The Use of the Hebrew Language in Medical Literature," Dr. Harry Friedenwald of Baltimore.

Discussion by Professor H. A. Wolfson and Dr. George Sarton of Harvard College.

Physicians are cordially invited to attend the meeting.

JAMES F. BALLARD, *Secretary.*

THE NEW ENGLAND HEALTH INSTITUTE

The New England Health Institute will meet in Portland, Maine, at the Eastland Hotel, April 22-23, 1931.

The exercises will be under the following sections:

I Public Health Administration.
II Preventable Diseases and Cancer.
III Sanitation and Engineering.
IV Tuberculosis.

V Social Hygiene.
VI Child Hygiene.
VII Mental Hygiene.
VIII Health Education.
IX Vital Statistics.
X Public Health Nursing.

Registration Monday morning, April 20, 1931—Room 1.

Addresses will be given as follows:

MONDAY, APRIL 20, 1931

Time
2 P. M. Mr. Frank Kiernan, "Social Hygiene Education." Sec. V.
3 P. M. E. D. Churchill, M.D., "Developments in Thoracic Surgery." Sec. IV.
4 P. M. L. C. Frank, "Improving the Milk Supply." Sec. III.
8 P. M. David Zacks, M.D., "What We Have Learned from the Ten-Year Program in Massachusetts." Sec. VI.

Room II.

2 P. M. T. F. Murphy, M.D., "The Vital Statistics Situation in Maine." Sec. IX.
3 P. M. Edith L. Soule, R.N., "Physical Examination and Corrective Work in Pre-school Children." Sec. VI.
4 P. M. S. W. Hartwell, M.D., "Mental Hygiene of Children." Sec. VII.
Room III.
3 P. M. Bryant E. Moulton, M.D., "Psychiatry of Juvenile Delinquents." Sec. VII.

TUESDAY, APRIL 21, 1931

Time Room I.
9 A. M. W. T. Harrison, M.D., "Advantages of Toxoid Diphtheria Prophylaxis." Sec. I.
10 A. M. Earl Bond, M.D., "Prevention of Insanity." Sec. VII.
11 A. M. Irma Reeve, R.N., "Communicable Disease Aspect of Public Health Nursing." Sec. X.
Miss Alma C. Haupt will discuss this paper.
Time Room I.
2 P. M. Matthias Nicoll, M.D., "Maternal Mortality and Prenatal Care." Sec. VI.
3 P. M. T. J. Parran, M.D., "Report of the New York Special Health Commission." Secs. I and III.
4 P. M. Sophia Nelson, R.N., "Venereal Disease Aspect of Public Health Nursing." Sec. X.
Miss Alma C. Haupt, discussant.

Room II.

9 A. M. Neil Dayton, M.D., "The Walter E. Fernald Plan for the Examination of Retarded Children in the Public Schools." Sec. VII.
10 A. M.——, "Technique of Tuberculosis Nursing." Sec. IV.
11 A. M. Joseph Smith, M.D., "Protein Reaction in Smallpox Vaccination." Sec. II.
2 P. M. F. L. Hoffman, M.D., "Some New Aspects of the Cancer Problem" Sec. IX.
3 P. M. Estes Nichols, M.D., Portland: "Has Tuberculosis Ceased to be a Major Public Health Problem?" Sec. IV.
4 P. M. Elmer W. Campbell, D.P.H., "Water Supplies of Camps and Wayside Eating Stations."
10 A. M. George H. Coombs, M.D., "Tetanus." Sec. II.
11 A. M. A. S. Gray, M.D., "Lead Poisoning." Sec. III.

Schedule of social functions will be found in the prospectus.

For particulars and full program apply to Dr. C. F. Kendall, State Department of Health, Augusta, Maine.

SUFFOLK DISTRICT MEDICAL SOCIETY

CENSORS' MEETING

The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, Thursday, May 7, 1931, at 4.00 o'clock.

Candidates should make personal application to the Secretary, and present their medical diploma at least one week before the examination.

LELAND S. MCKITTERICK, *Secretary.*
205 Beacon Street, Boston, Mass.

NEW ENGLAND OBSTETRICAL AND GYNECOLOGICAL SOCIETY

Headquarters—University Club
April 22, 1931
Boston

MORNING CLINICS

8.00 Assembly for those who wish at the University Club.
9.00-11.30 The Free Hospital for Women, Brookline.
9.00-11.00 Boston City Hospital Gynecological Service.
9.00-11.30 Massachusetts General Hospital.

1. Abnormal uterine bleeding. Types described by Wilfred Shaw. Slides and specimens.—J. V. Meigs.
2. Substitution therapy in amenorrhea. Presentation of cases. Fuller Albright.
3. Use of the Rabbit as a test animal in the Aschheim-Zondek test for pregnancy.—Perry C. Baird.
4. Thrombocytopenic purpura hemorrhagica as a cause of abnormal uterine hemorrhage. Presentation of cases. Langdon Parsons.
5. Rupture of the graafian follicle, the corpus luteum and small ovarian cysts as a reason for abdominal emergencies. Slides and specimens.—W. F. Hoyt.

6. Acute Salpingitis in Pregnancy.—John Stewart.

10.30-12.00 Boston Lying-In Hospital.

12.30 Luncheon at University Club.

AFTERNOON CLINICS

2.30- 4.30 Carney Hospital.
2.30 (1) Gynecological Operations.
(2) Motion Picture Film, Vaginal Hysterectomy.

2.30- 4.30 Huntington Hospital.
Carcinoma of Breast.—Dr. C. C. Simmons.
Carcinoma of Retained Cervix.—Dr. G. A. Leland, Jr.
Postmortem Findings in Carcinoma of Cervix. Dr. S. Warren.
The Effect of Radium upon Carcinoma of Cervix.—Dr. J. V. Meigs.
Avertin Anesthesia.—Dr. G. W. Taylor.
X-ray Treatment of Carcinoma of Cervix. —Dr. C. L. Swan, Jr.

2.30- 4.30 St. Elizabeth's Hospital.

2.30- 4.30 Boston City Hospital Gynecological Service.

2.30- 4.30 Homeopathic Hospital.

5.15 Executive Meeting—followed by General Meeting.

7.30 Dinner at the University Club.

Dr. A. Warren Stearns, who is Dean of Tufts Medical School and Commissioner of Correction for the State of Massachusetts, will be the principal speaker of the evening.

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

April 17—New England Roentgen Ray Society. See page 789, issue of April 9.

April 17-18—Harvard Medical Alumni Association. See page 789, issue of April 9.

April 21—South End Medical Club. See page 742, issue of April 2.

April 21—New England Society of Psychiatry. See page 840.

April 21—Boston Medical History Club. See page 840.

April 22—The New England Obstetrical and Gynecological Society. See page 841.

April 22-23—The New England Health Institute. See page 840.

April 23—Medical Clinic at the Peter Bent Brigham Hospital. See page 837.

April 24—Belmont Medical Society. See page 788, issue of April 9.

April 28—New Hampshire Surgical Club. See page 788, issue of April 9.

May 6—Cardiac Course. See page 854, issue of October 23, 1930.

May 11-14—Meeting of the National Tuberculosis Association at Syracuse. See page 1310, issue of December 25.

June 8-12—Woman's Auxiliary to the American Medical Association. See page 743, issue of April 2.

June 8-14—International Hospital Congress. See page 521, issue of March 5.

June 9—The Scientific Session of the American Heart Association. See page 742, issue of April 2.

June 16-19—Catholic Hospital Association. See page 690, issue of March 26.

July 6-11—Medical Clinic, Paris. See page 520, issue of March 5.

July 26-31—Third Congress of the Pan American Medical Association. See page 632, issue of March 19.

July 27-31—Third International Congress of Radiology, Paris. See page 789, issue of April 9.

September 14-17—The American Public Health Association. See page 632, issue of March 19.

DISTRICT MEDICAL SOCIETIES

Bristol North District Medical Society

September 17—Details to be announced.

Essex North District Medical Society

Next meeting: Amesbury Country Club, Amesbury, May 13, 1931; dinner at 12.30. Speakers, Wm. H. Ross, President, New York State Medical Society, "A Medical Society's Public Relations Committee at Work."

Wm. J. French, Medical Director Commonwealth Fund, New York, "Fellowship Grants to Doctors in Rural Communities."

Essex South District Medical Society

Thursday, May 7—Censors meet at Salem Hospital at 3:30 P. M.

Tuesday, May 12—See page 690, issue of March 26.

Franklin District Medical Society

May—The meeting will be held on the second Tuesday of May at 11 A. M. at the Weldon Hotel, Greenfield.

Middlesex East District Medical Society

May 13—At Wakefield.

Norfolk District Medical Society

May—Annual Meeting. Date and details to be announced.

May 7—Censors' Meeting for examination of candidates at 171 Warren Street, Roxbury, 4 P. M. Candidates from schools on accepted list will forward application with certificate of graduation to the secretary at least one week prior to date of examination. Candidates from schools not on accepted list who have been in practice five years will forward applications together with five letters of recommendation from members in good standing in the Massachusetts Medical Society to Dr. P. P. Johnson, Cabot Street, Beverly, Mass., two weeks prior to date of examination. Fee for all candidates $10.00.

FRANK S. CRUICKSHANK, Secretary.

Norfolk South District Medical Society

May 7—The censors will meet at 11:30 A. M. at the Norfolk County Hospital, South Braintree. The Society meets at 12.

NATHAN R. PILLSBURY, Secretary.

Suffolk District Medical Society

April 29—Combined meeting with the Boston Medical Library. This meeting will be held at 8:15 P. M. Election of Officers.

The medical profession is cordially invited to attend this meeting.

GEORGE S. DERBY, M.D.,
President, Suffolk District Medical Society.
LELAND S. McKITTRICK, M.D.,
Secretary, Suffolk District Medical Society.
HILBERT F. DAY, M.D.,
Boston Medical Library.

May 7—Censors' Meeting. See page 841.

BOOK REVIEWS

Traumatotherapy, the Treatment of the Injured. By JOHN J. MOORHEAD, B.Sc., M.D., F.A.C.S., (D.S.M.) Professor of Surgery and Director, Department Traumatic Surgery, New York Post-Graduate Medical School and Hospital, etc. Late Lieut.-Colonel American Expeditionary Forces; Colonel Medical Officers Reserve Corps, U. S. Army.—With 625 illustrations. Philadelphia and London, W. B. Saunders Company 1931. Price $7.00.

This profusely illustrated volume of 574 pages deals with the "first aid treatment" and the treatment of the immediate results of injuries. The author points out in his preface that "there is no type of surgery today more universal than accident surgery" and that it is a specialty in itself. Dr. Moorhead's long war service and his post-war re-

sponsibilities should eminently fit him to speak with authority. In the chapter on the treatment of wounds, the author's ingenuity is revealed and his sound methods are graphically described and illustrated. There is much in the book beside traumatic surgery, as the headings of the chapters on "Traumatic Neuroses," "Restoration of Function" and "Medicolegal and Allied Aspects" would suggest. Over 250 pages are concerned with dislocation and fractures. The various steps in dealing with these injuries are concisely given, perhaps too concisely. The surgeon in search of guiding information may well ask for more than he will find in these headings and the accompanying illustrations if he is to deal intelligently and efficiently not only with the immediate treatment of these injuries but what is more important, "see them through". The experienced author's "Comment" which usually follows this outline therapy in the text of the more important injuries is helpful but might often be more specific and sometimes leave one in doubt as to the methods of choice. There are many cuts of what may be termed old-fashioned splints and the historical nature of some of this apparatus is not always made clear. Some of the very most important of the traumatic injuries, such as intracapsular fractures of the hip and compression fractures of the spine are discussed less fully than we could have wished both as to diagnosis and treatment, while much space and profuse illustrations are given to less important injuries and special methods. There is a lack of balance. Much need exists for a volume on this subject and Dr. Moorhead's very inclusive book will supply a considerable part of this need.

Infant Feeding in General Practice. J. V. C. BRAITHWAITE. William Wood & Co. New York City. Price $1.75.

The author of this little book of 140 pages makes no claim of offering anything new or original in the field of infant nutrition. His object has been to supply the general practitioner with the knowledge necessary to feed the infant in his care. The book does not supply any information not found in a standard textbook on pediatrics, such as Holt & Howland, in the section on nutrition.

The methods of feeding described are those successfully used in England, and it is gratifying to note that they are identical with those in general use in this country. He treats his subject in the usual manner discussing breast feeding, artificial feeding, and nutritional disorders. The section on nutritional disorders will leave the average reader in confusion, for the conditions are grouped according to their clinical symptoms rather than on an etiologic basis.

The application of the book is limited to the first year of infancy, for insufficient attention is paid to the important nutritional problems presented after the formula period has passed. One is amazed at the scant emphasis placed on the importance of supplying the accessory food substances, particularly Vitamin D, in the diet.

Talks on Tuberculosis with Patients and Their Friends. By JOHN B. HAWES, 2ND, M.D. Houghton Mifflin Company, The Riverside Press, Cambridge. Price $2.00.

What treatment does the diagnosis of tuberculosis bring to your mind? Your answer will, of course, depend upon whether you are a "rich man, poor man, beggar man, or thief, doctor" or layman. But to many, tuberculosis still implies "consumption" with early emaciation and death. To others, it signifies at best a lifetime of inactivity with no hope of return to regular work. Others picture tuberculosis patients as living in cabins in pine woods with their "cure chairs" happily placed by a mountain brook, with books and binoculars at hand. The entire idea of treatment is summed up for others in a single word such as "Saranac", "Colorado", or the "Far West." Many would make treatment consist of gallons of milk and crates of eggs (to be served raw). Too many will still waste time in hunting for the doctor who will promise a quick cure with a new serum. Those who keep up with "modern medicine" may think at once of "gas treatments", "nerve sections", and "rib operations". Then, what of these "sun lamps" and "sun baths"?

These questions are constantly arising in the minds of patients who have recently been diagnosed as tuberculous, as well as in the minds of those who have had the disease for a long time, and also of their families and friends. It is such questions and many others that are answered in this book which is rightly called "Talks on Tuberculosis with Patients and Their Friends." In addition to the ground covered in the other short popular books on tuberculosis, this book stresses the necessity of getting the patient ready to return to his regular occupation, if it is in any way suitable. It points out also the part which tuberculosis patients and their friends should take in the world movement to stamp out the "Great White Plague." This book is not a scientific treatise on tuberculosis, nor does it intend to give all the details of treatment which every patient might wish to know. It does, however, cover in an informal way that part of the tuberculosis field which particularly concerns the patient and his lay friends. The text is easily read and gives a clear-cut and sane picture of the new world into which a patient finds himself thrust when the diagnosis of tuberculosis is made. It is a welcome addition to the group of books designed to help such a patient on the road to recovery.

Both general practitioners and specialists will find points with which they are not in entire agreement. Our own first quarrel would be with the chapter on diet. One leaves this chapter with three impressions: (1) eat what you like but don't eat much of it; (2) don't take any vegetables except rice, potato, and macaroni; (3) raw eggs are deadly. Of course, this is not just what is said but we do feel that there is a lack of emphasis on a properly balanced diet, especially one which contains sufficient amounts of vitamin-containing foods.

Many workers, particularly the Saranac group, will feel that there is insufficient emphasis on intestinal

tuberculosis as a complication. Glandular and laryngeal tuberculosis are noted as complications and their treatment outlined, but intestinal tuberculosis is barely mentioned. It is possible, of course, that the author feels that the value of the present treatment with Alpine lamp, cod liver oil, and tomato juice has not yet been clearly proved.

Some will undoubtedly feel that the general practitioner is roughly handled for his shortcomings in dealing with tuberculous patients, but the author undoubtedly expected such criticism and, unfortunately, his warning against careless diagnosis and insufficient treatment is too often deserved.

Physicians' Manual of Birth Control. By ANTOINETTE F. KONIKOW, M.D. Published by Buchholz Publishing Co., New York. 233 pages.

The Physicians' Manual of Birth Control is exactly what it purports to be—a practical guide for physicians in contraceptive technic. The author, whose experience in this field has been extensive, describes the methods which she herself has prescribed for her patients, and the results which have been obtained. One is impressed by the author's conscientiousness, both in striving to secure the best results in every case, and in evaluating end results.

The book illustrates very well the complexity of contraceptive technic. There is no one method which is applicable in every case, and satisfactory results can be secured only by careful consideration of the anatomical, physiological and psychical factors involved. Because of Dr. Konikow's intimate knowledge of her patients, her book is perhaps a better guide than those which are based upon a greater number of cases but which lack the element of personal contact.

An Introduction to Pharmacology and Therapeutics. Second Edition. By J. A. GUNN, M.D., D.Sc., M.A. Professor of Pharmacology in the University of Oxford. Humphrey Milford, Oxford University Press. 1931. Price $1.50.

There can be nothing but praise for this small volume of 233 pages on pharmacology and therapeutics. The book is well set up, well printed, and systematically written in good English. It is entirely modern and contains nothing but essential material. The six chapters dealing with the action of drugs on the various portions of the nervous system are unusually excellent.

This book should be indispensable to students, especially at its very modest price.

A Treatise on Orthopaedic Surgery. By ROYAL WHITMAN. Published by Lea & Febiger, Philadelphia. 9th Edition. Price $10.00.

The ninth edition of Whitman's classic, "Orthopaedic Surgery," Lea and Febiger, Philadelphia, has been recently published, bringing the former editions to date.

For thirty years Whitman's "Orthopaedic Surgery" has maintained preëminence. This latest edition in no way lowers the high standards set by the author for an exhaustive text in Orthopaedics.

There is appended a chapter on Collateral Orthopaedic Surgery to complete the volume. Other works on the subjects presented in this chapter, namely, fractures and extremity traumata, bring the subject matter up-to-date better. Dr. Whitman's real interest lies in the older phases of orthopaedic surgery rather than in the more recent extensions into the realm of fractures and extremity traumata. However, the chapter still further increases the value of this classic.

Recent Advances in Haematology. By A. PINEY. Third Edition. Philadelphia, P. Blakiston's Son & Co., Inc. Price $3.50.

In this third edition are incorporated the results of laborious study of the literature and an expression of the author's viewpoint on certain topics. A great deal of stress is laid in interpreting blood pictures on the embryological data heretofore attained. The mooted question of the origin of blood cells is discussed in detail, and the author believes that "Intra-embryonic haematopoiesis takes place by differentiation of reticulo-endothelial cells, which can, according to their environment, produce myeloid or lymphatic stem-cells, which are morphologically different cells. The myeloid stem-cell is capable of giving rise to nucleated red cells (normoblasts) into the lumen of vessels, and to myeloblasts extra-vascularly. The lymphatic stem-cell arises in association with lymphatic reticulo-endothelium. All these cells are mesoblastic in origin."

Leukemia, pernicious anemia, chloroma, myeloma and conditions associated with splenomegaly receive excellent consideration. Two chapters are devoted to "leukemoid blood pictures," the latter designating "any blood picture in which there is an increase in the number of immature cells in the circulation but it does not apply to simple excess of one cell type without appearance in the circulation of less differentiated cells". This conception varies from that of Krumbhaar who used the same term to describe a group of cases "which from the appearance of the blood alone would be indistinguishable from one of the various forms of leukemia".

The index of Schilling is described and accorded its proper evaluation. It is now generally agreed that given due consideration, this procedure will often be very helpful. Throughout the book there is a slight variation in terminology from that used in this country, but not sufficiently, however, to mar the progress of the reader.

The appendix is valuable in that it goes into detail regarding certain hematologic laboratory procedures that are usually superficially treated in ordinary texts. To enhance the clarity of the texts, a glossary is also appended.

We are indebted to Piney for several hematologic contributions, not the least of which is this volume.